## U. S. DEPARTMENT OF AGRICULTURE WEATHER BUREAU

CHARLES F. MARVIN, Chief

# MONTHLY WEATHER REVIEW

SUPPLEMENT NO. 2

I. A CALENDAR OF THE LEAFING, FLOWERING, AND SEEDING OF THE COMMON TREES OF THE EASTERN UNITED STATES

BY

II. PHENOLOGICAL DATES AND METEOROLOGICAL DATA RECORDED R



.A21 1915

WASHINGTON GOVERNMENT PRINTING OFFICE

## **National Oceanic and Atmospheric Administration**

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## ANNOUNCEMENT.

During the summer of 1913 the issue of the system of publications of the Department of Agriculture was changed and simplified so as to eliminate numerous independent series of Bureau bulletins. In accordance with this plan, among other changes, the series of quarto bulletins—lettered from A to Z—and the octavo bulletins—numbered from 1 to 44—formerly issued by the U. S. Weather Bureau have come to their close.

\*Contributions to meteorology such as would have formed bulletins are authorized to appear hereafter as Supplements to the Monthly Weather Review. (Memorandum from the Office of the Assistant Secretary, May 18, 1914.)

These supplements will comprise those more voluminous studies which appear to form permanent contributions to the science of meteorology and of weather forecasting, as well as important communications relating to the other activities of the U.S. Weather Bureau. They will appear at irregular intervals as occasion may demand, and will contain approximately 100 pages of text, charts, and other illustrations. Copies may be procured at the prices indicated below by addressing the Superintendent of Documents, Government Printing Office, Washington, D. C.

## SUPPLEMENTS PUBLISHED.

No. 1. Types of storms of the United States and their average movements. By E. H. Bowie and R. H. Weightman. Washington, 1914. 37 p. 114 ch. 4°. Price 25 cents.

No. 2. I. Calendar of the leafing, etc., of the common trees of the Eastern United States. By G. N. Lamb. 19 p. 4 figs. II. Phenological dates, etc., recorded by T. Mikesell at Wauseon, Ohio. By J. Warren Smith. 73 p. 2 figs. Washington, 1915. 4°. Price 25 cents.

I.

A CALENDAR OF THE LEAFING, FLOWERING, AND SEEDING OF THE COMMON TREES OF THE EASTERN UNITED STATES.

By GEORGE N. LAMB.



## I. A CALENDAR OF THE LEAFING, FLOWERING, AND SEEDING OF THE COMMON TREES OF THE EASTERN UNITED STATES.

By George N. Lamb.

[Dated: January 8, 1914, U. S. Forest Service, Washington.]

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## INTRODUCTION.

Trees go through the annual round of their activities with a definite sequence of events. These follow each other in a regular order that normally remains the same season after season. This sequence is not the same for all trees. Some put out their leaves first followed by their flowers; in others the flowers are first to make their appearance. Seed ripening for the various species occurs in spring, summer, or autumn. Many trees hold their leaves until after the seed has dropped, while others retain the seed after the leaves have disappeared.

Whatever this order may be, it is constant for a given species and the occurrence of any of these events is closely dependent upon the progress of the season. The leafing or flowering of a tree marks very definitely a certain point in the advent of spring. In fact, no instrument will indicate the advance of season as well as the major activities of the plants, since the development of the season is the result of a number of factors such as temperature, precipitation, humidity, and evaporation. The most conspicuous plants are the trees, and since they live for many years observations of their activities are more easily obtained and are more desirable for this purpose. Such observations have therefore been made on the flowering, leafing, seed ripening, seed falling, and leaf falling of the common trees. These are known as phenological observations. These observations have been recorded for a long time by various observers throughout

<sup>1</sup> Phenology (a contraction of the word phenomenology with a restricted application). That branch of applied meteorology which treats of the influence of climate on the annual phenomena of animal and plant life.

the country, and the Forest Service has, in the last few years, collected a large amount of this data. All of this material, whether obtained by the observers under the direction of the Forest Service or by individuals working alone, has been assembled and compiled in the form of a chart which is virtually a tree calendar.

Explanation of chart.—On these charts each square represents a month, on which the data have been placed in five-day periods. Thus, if a pattern begins in the middle of a square, it indicates the 15th of that month; if it is one-fifth the way across the square, the date is the 5th; and so on. Several patterns have been used to designate the different life functions of the trees. The significance of the patterns used is described at the bottom of each figure. In showing the time of leaf falling, the pattern has been put in in a triangular shape, since in any particular region the tree is obviously in foliage until the average date of leaf falling. The height of the pattern is entirely dependent upon the number of colors that must be shown at a given date, and is therefore of no particular significance.

The earliest date shown denotes the average time at which the function occurs in the southern range of the species, and the latest date the average time that it takes place in the northern range of the species. Care should be taken not to confuse the average time of the occurrence of a function, for instance flowering, in the southern and northern range of the species for its duration in any particular locality. The chart is not intended to show how long a certain tree may be in flower or in fruit.

Species	Jan.	Feb.	Mar.	Apr.	Мау	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
ABIES BALSAMEA (Balsam Fir)												
ACER NEGUNDO (Boxelder)												
ACER PENNSYLVANICUM (Striped Maple)												
ACER RUBRUM (Red Maple)												
ACER SACCHARINUM (Silver Maple)		VIII										
ACER SACCHARUM (Sugar Maple)												
ACER SPICATUM (Mountain Maple)												
ÆSCULUS GLABRA (Ohio Buckeye)	.v											
ÆSCULUS HIPPOCASTANUM (Horse Chestnut)												
AILANTHUS GLANDULOSA (Tree of Heaven)												
AMELANCHIER CANADENSIS (Serviceberry)												
ASIMINA TRILOBA (Papaw)												
BETULA LENTA (Sweet Birch)												
BETULA LUTEA (Yellow Birch)			·									
BETULA PAPYRIFERA (Paper Birch)												
BETULA POPULIFOLIA (White Birch)												
CARPINUS CAROLINIANA (Blue Beech)												
CASTANEA DENTATA (Chestnut)												H.L.



LEAFING. IN FOLIAGE. SEED FALLING.







Species	Jan.	Feb.	Mar.	Apr.	Мау	June	July	Aug.	Sept.	Oct.	Nov.	De
CATALPA CATALPA (Common Catalpa)												
CATALPA SPECIOSA (Hardy Catalpa)				VIIII								
CELTIS OCCIDENTALIS (Hackberry)												
CERCIS CANADENSIS (Redbud)												
CLADRASTIS LUTEA (Yellow Wood)												
CORNUS FLORIDA (Flowering Dogwood)												
CRATÆGUS COCCINEA (Scarlet Haw)												
DIOSPYROS VIRGINIANA (Persimmon)												
FAGUS ATROPUNICEA (Beech)												
FRAXINUS AMERICANA (White Ash)				VIII							-	
GINKGO BILOBA (Maiden Hair Tree)												
GLEDITSIA TRIACANTHOS (Honey Locust)												
GYMNOCLADUS DIOICUS (Coffee Tree)												
HAMAMELIS VIRGINIANA (Witch Hazel)											9 11111111	
HICORIA ALBA (Mockernut Hickory)												
HICORIA GLABRA (Pignut Hickory)		·										
HICORIA OVATA (Shagbark Hickory)												, A
ILEX OPACA (Holly)												

LEAFING. IN FOLIAGE. SEED FALLING.



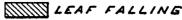
Species	Jan.	Feb.	Mar.	Apr.	Мау	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
JUGLANS CINEREA (Butternut)		·										
JUGLANS NIGRA (Black Walnut)												**********
JUNIPERUS VIRGINIANA (Red Cedar)												
KALMIA LATIFOLIA (Mountain Laurel)												
LARIX LARICINA (Tamarack)												
LIQUIDAMBAR STYRACIFLUA (Sweet Gum)												
LIRIODENDRON TULIPIFERA (Yellow Poplar)												
MAGNOLIA ACUMINATA (Cucumber Tree)												
MORUS RUBRA (Red Mulberry)												
NYSSA SYLVATICA (Black Gum)												· · · · · · · · · · · · · · · · · · ·
PICEA CANADENSIS (White Spruce)												
PINUS AUSTRIACA (Austrian Pine)												
PINUS STROBUS (White Pine)												
PINUS SYLVESTRIS (Scotch Pine)												
PLATANUS OCCIDENTALIS (Sycamore)		111111										
POPULUS DELTOIDES (Cottonwood)			<i>VIIII</i>									
POPULUS GRANDIDENTATA (Largetooth Aspen)			E	<i>VIIII</i>								
POPULUS TREMULOIDES (Quaking Aspen)											`	H.L.

LEAFING.

IN FOLIAGE. SEED FALLING.







Species	Jan.	Feb.	Mar.	Apr.	Мау	June	July	Aug.	Sept.	Oct.	Nov.	D
PRUNUS AMERICANA (Wild Plum)												
PRUNUS SEROTINA (Black Cherry)												
PRUNUS VIRGINIANA (Choke Cherry)												
PTELEA TRIFOLIATA (Hoptree)												
QUERCUS ALBA (White Oak)												
QUERCUS MACROCARPA (Bur Oak)												
QUERCUS RUBRA (Red Oak)			,									
QUERCUS VELUTINA (Black Oak)												
QUERCUS VIRGINIANA (Live Oak)												
ROBINIA PSEUDACACIA (Black Locust)												
SALIX NIGRA (Black Willow)			VIIIII									
SASSAFRAS SASSAFRAS (Sassafras)												
TAXODIUM DISTICHUM (Bald Cypress)												
TILIA AMERICANA (Basswood)												
TSUGA CANADENSIS (Hemlock)												
ULMUS AMERICANA (White Elm)	POWONYYYX											
ULMUS PUBESCENS (Slippery Elm)		-	7777									
ULMUS RACEMOSA (Cork Elm)												



LEAFING. IN FOLIAGE. SEED FALLING.







In this preliminary chart the data available for the different functions of the different species have not been uniformly plentiful. In all species there has been a scarcity of reports for the extreme northern and southern limits of their range, which it is hoped that future observations will supply. Relatively few observations have been made on the conifers, and for this reason it has been possible to chart only a few of them. The various methods used by the large number of miscellaneous observers, or rather their lack of method and uniformity, have tended to make it difficult to combine their results in one chart. One observer has noted only the flowering of a number of species for a season in a single locality, taking for his standard the appearance of the first flower. Another has given the average date of blossoming for a number of years. One observer, for instance, has recorded the averages for about 30 tree species based on observations covering a period of 40 years. Against such complete records for one locality, it has been necessary to balance the observations of a single season or a few seasons in other localities. Another point which has added to the difficulty in comparing records is that few observers, outside those of the last few years who have kept records directed by the Forest Service, have recorded all the life functions of the trees. Thus, one person has kept dates on the leafing and leaf falling of trees, another has only records of the time of flowering, while a third may have been interested only in the production of seed and, therefore, recorded only dates for seed ripening.

Furthermore, in the case of species whose range varies more or less widely, the charts do not show the relative time of occurrence of the different functions in the same locality. Thus, if one species ranges from Florida to Pennsylvania and another from North Carolina to Maine, the chart shows the time of flowering at the northern and southern extensions of their ranges, but does not show the relative time of flowering where they grow side by side in Virginia. The average time of flowering for the more southerly species may be April 1, and for the more northerly one May 1; yet where their ranges meet, the more northerly species may actually bloom a week earlier. Where two species have approximately the same range, however, the chart shows this information quite accurately.

In the preparation of this chart all seemingly unusual records have been discarded unless their authenticity could not be questioned. All records of doubtful authority have also been discarded. In the range used for each species in the chart no distinction has been made between the native range and the planted or extended range of the species. No records are included for species west of the Rocky Mountains, although several of the species charted grow in that region.

In order to determine the approximate date of the different functions, the user of the chart must reckon the position of his locality within the general range of each species in the United States. If he is located in about

the center of the range, then for ordinary purposes he can assume that if the flowering of a species in the southern limits of the range is March 1, and in the northern limits May 1, the average time of flowering in his locality will be approximately April 1. However, altitude, soil, moisture, situation, and proximity of large bodies of water play such an important part in determining the dates of the different functions that these factors should always be taken into consideration. In general the season is about four days later for each degree of latitude (about 69 miles) northward of a point, but this does not always mean that the average time of the occurrence of a function will be retarded for the same time. Local conditions may sometimes, however, more than offset this influence, and altitude has the same influence as northerly latitude.

### FLOWERING.

Data on flowering have been more plentiful than on any other function. This is perhaps due to the fact that this feature is much more attractive to the average observer than the other events in the life of the tree and also because in most cases flowering comes at the time of year when there is an awakened interest in nature. By the middle of summer, and at least by the end of summer, the average observer has lost most of his enthusiasm, and consequently even if he intended to make complete records it is often the case that only spring records are made. The time of flowering perhaps more than any other habit of the tree indicates the progress of the season shown. In a given locality the trees flower in a rather definite sequence and this sequence is fairly well maintained season after season, although the actual dates for each species may vary considerably. Brendel<sup>2</sup> has investigated for a number of species the amount of heat required to produce flowering. As a result of an average of nine observations on 15 different species he found the amount of heat necessary to bring each to flower. This amount varied from a total of 210° centigrade for silver maple to a total of 1,700° centigrade for basswood. He obtained these figures by adding the daily mean temperatures after January 1, excluding the negatives; that is, the daily mean temperatures below zero. He also demonstrated that although the time of flowering may vary as much as 20 days, yet the sum total of daily mean temperatures in each case is approximately the same.

## LEAFING OUT.

Next to the records on flowering the records of leafing out have been most numerous. In most cases, however, these have been recorded as first appearance of leaves or the beginning of leafing out with relatively few records on the time of general leafing out. This has made it possible to chart the beginning of leafing rather accurately; but has in most cases left the average time that a particular species is in full foliage as represented by the cross

hatching to be charted from a few scattering records. In a chart of this kind, however, this information even with abundant records could be only approximate.

One of the greatest difficulties encountered with certain species was to establish the proper relation between leafing out and flowering. In some of the less important and less widely distributed species, especially those in which flowering is inconspicuous and occurs about the time of leafing careful observations were often lacking.

#### SEED RIPENING.

It has been impossible to secure accurate and well distributed data on seed ripening for many of the species. Such vague terms as early summer, late summer, or fall have often been employed, and the exceptions are few where observers have made more definite statements. Perhaps this is partially explained by the difficulty of determining in an easy manner just when the seed or fruit of many species is ripe. While it is obvious in most cases at a glance just when flowering occurs, the exact time when fruit or seed is ripe is not easy to determine.

In forest-grown trees it is especially difficult to make careful observations, since the seed or fruit is seldom borne near the ground and often a close inspection is necessary to determine this point. In some of the pines, for instance, the cones may still be greenish and yet the seed may be ripe, while on the other hand in such trees as the ashes and birches the seed turns yellowish and appears to be ripe some time before it reaches maturity. In certain species, for example the mulberry, individual trees ripen their seed over a considerable length of time, while others, like the cottonwood, ripen all their seed almost simultaneously. Local considerations, such as soil and moisture conditions and exposure, cause a considerable variation in individual trees of the same species in a locality.

## SEED FALLING.

There is a great variation in the time of seed falling in the different species and even among individuals of the same species. In some trees, the red and the silver maples for instance, the seed ripens and falls almost immediately, while in others, as the catalpa and the Sycamore, most of the seed is retained until nearly spring. Others, as exampled by the boxelder and the striped maple, drop their seed gradually throughout the fall and early winter. There are also trees like the hackberry and the red cedar which would normally hold their seed until nearly spring, but birds generally pick them off by midwinter. In constructing the chart some difficulty has been encountered in obtaining average records of seed falling of certain species, since on the whole reports on time of seed falling are very meager and lacking in authenticity.

## LEAF FALLING.

The time of leaf falling taken for all the species is very irregular. In the north the occurrence of the first killing

frost is a very important factor in determining the time of leaf falling, while in the south the leaves may ripen and fall before frosts occur and in such regions the time of leaf falling is inclined to be rather gradual and to extend over about the same period every year. In the north a heavy frost may occur any time from September 1 to October 1, and leaf falling in many species may then be very rapid. The cottonwood, for instance, often drops all its leaves in a day or two. Other species, however, chiefly the oaks and beech, both in the north and south, may show little effect of frost and a great variation in the time of leaf falling, even among individuals of the same species. The white and scarlet oaks are especially variable. As a rule they hold nearly all their leaves until winter, and then gradually lose them, those on the upper branches generally falling first. This characteristic, however, is not uniform for individual trees. Now and then one is seen that loses its leaves or the majority of them much earlier. With species whose leaves are inclined to be persistent, there is doubtless some relation between the variation of this characteristic and the moisture and fertility of the soil and the exposure. By a series of careful observations this relation could probably be made evident.

## VALUE OF CHART.

To nature students.—This calendar has been made tentatively with such data as are now available. In the form presented it is quite accurate, but slight corrections may be made when additional data have been secured. The charts should serve, however, to give a general idea of the seasonal functions of the different species. They should be particularly valuable for schools in providing a graphic representation of the progress of the season as recorded by the trees. By using this chart as a guide it will be easy to construct local charts from the observations of the pupils.

In preparing local charts it is preferable to have observations of several seasons, but a very good chart can be constructed from the records of one season if it is average or normal. Local charts will differ from the general charts in that the period of time shown by a certain color may represent the duration of the function represented instead of the variation in the average time for the different regions in which the species grows. The great value of such work in the schools, however, is that of teaching the pupils how to make careful scientific observations.

While the observations of one person are often inaccurate, the combined reports of the pupils, going to and from schools in different directions, are in most cases very dependable. The teacher can easily arouse sufficient interest to cause keen competition for the honor of being first to see or to bring in a certain flower. Such a practice opens the eyes of the pupil to a new world and at the same time changes the monotonous journey between the home and school into a voyage of discovery.

In making averages of dates which occur in more than one month, it is advisable to reduce the day of the month to the day of the year. It is then a simple matter to add a large number of dates and by dividing get the average date. For instance, a tree may flower in different years as follows: March 22, April 10, April 20, and May 5. In days of the year this would be the 79th, 100th, 110th, and 125th day. Averaging these we get the 104th day, or April 14. The accompanying Table 1 gives the day of the year for a normal year and will greatly facilitate the task of averaging dates.

Table 1.—Table of days for a normal year.

Day of month.	Jan.	Feb.	Mar.	Apr.	Мау.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Day of month.
1	1	32	60	91	121	152	182	213	244	274	305	335	1
2	2	33	61	92	122	153	183	214	245	275	306	336	2
3	3	34	62	93	123	154	184	215	246	276	307	337	3
4	4	35	63	94	124	155	185	216	247	277	308	338	4
5	5	36	64	95	125	156	186	217	248	278	309	339	5
6	6	37	65	96	126	157	187	218	249	279	310	340	6
7	7	38	66	97	127	158	188	219	250	280	311	341	7
8	8	39	67	98	128	159	189	220	251	281	312	342	8
9	9	40	68	99	129	160	190	221	252	282	313	343	9
10	10	41	69	100	130	161	191	222	253	283	314	344	10
11	11	42	70	101	131	162	192	223	254	284	315	345	11
12	12	43	71	102	132	163	193	224	255	285	316	346	12
13	13	44	72	103	133	164	194	225	256	286	317	347	13
14	14	45	73	104	134	165	195	226	257	287	318	348	14
15	15	46	74	105	135	166	196	227	258	288	319	349	15
16	16	47	75	106	136	167	197	228	259	289	320	350	16
17	17	48	76	107	137	168	198	229	260	290	321	351	17
18	18	49	77	108	138	169	199	230	261	291	322	352	18
19	19	50	78	109	139	170	200	231	262	292	323	353	19
20	20	51	79	110	140	171	201	232	263	293	324	354	20
21	21	52	80	111	141	172	202	233	264	294	325	355	21
22	22	53	81	112	142	173	203	234	265	295	326	356	22
23	23	54	82	113	143	174	204	235	266	296	327	357	23
24	24	55	83	114	144	175	205	236	267	297	328	358	24
25	25	56	84	115	145	176	206	237	268	298	329	359	25
26 27 28 29 30 31	26 27 28 29 30 31	57 58 59	85 86 87 88 89 90	116 117 118 119 120	146 147 148 149 150 151	177 178 179 180 181	207 208 209 210 211 212	238 239 240 241 242 243	269 270 271 272 273	299 300 301 302 303 304	330 331 332 333 334	360 361 362 363 364 365	26 27 28 29 30 31

To botanists.—The botanist and especially the plant collector and ecologist are at all times in need of more accurate data on these functions. The plant pathologist is constantly in need of accurate information on the date of the performance of these functions of the tree in order that he may fully understand the life history of injurious parasitic organisms and also ascertain the most favorable time and means for their suppression. In fact, anyone engaged in investigations which deal with life functions of trees would necessarily be benefited by a greater knowledge of the life history of the species.

To foresters.—In forestry these data are also valuable. Proper methods of cutting are often dependent upon an accurate knowledge of the time of seed ripening or seed dissemination. One of the problems of forest management is to harvest trees in such a way that another desirable crop will immediately take the place of the old one. In accomplishing this, the best method is often by natural reproduction. To secure such reproduction it is essential that the forester be familiar with the life habits of all the trees and shrubs of the forest. It is largely by knowing these habits and controlling them that he can expect to

keep in check the less desirable species and secure the establishment of a new growth of valuable trees.

The data given in the chart on seed ripening and seed falling should be of practical importance in determining the time for seed collection, an industry which each year is becoming more and more important in this country. It will be valuable not only in itself, but can be used as a basis for constructing local charts which will still further aid in the planting of seed collection. More data along these lines should also make it possible to determine in advance the approximate date of seed ripening by establishing a relation between seed ripening and the summation of mean daily temperature. A relation between the summation of daily mean temperature after January 1 and flowering has been established by Brendel and other writers and it is likely that a similar relation could be established for seed ripening.

#### HOW TO MAKE PHENOLOGICAL OBSERVATIONS.

The Forest Service has prepared a printed form (Form 416) for recording observations on leafing, flowering, and fruiting of forest trees. These blanks will be sent to any one willing to undertake these observations. One blank is necessary for recording the date on each species in a locality. If records on the same species are made in localities some distance apart or on trees growing in very different situations, such as in a valley and on a mountain side, a separate blank should be used for each. In making these observations, it is much more important to secure complete records of a few species than partial records on a large number of species. While the Forest Service desires this information primarily on trees growing in the forest, the absence of any forest area or woodlands in many localities makes it desirable to secure observations on trees growing in parks or even along city streets. This fact should, however, be indicated on the blank, as the behavior of a tree in the city is noticably different from the behavior of the same species growing in the woods. In general the period of flowering is earlier in the city, owing to ample growing space, good soil, and protection by surrounding buildings. City or park trees are also much more apt to display unusual individual variations since they are often subjected to a greater variety of soil and moisture conditions, and to variations due to pruning and transplanting.

The pruning of large limbs of a tree in midsummer will greatly change the time of leaf falling in autumn and to a less extent the leafing out the following spring and perhaps for several subsequent seasons. The writer has observed leaves which had appeared on soft maple after they were heavily pruned in August to be green and vigorous on December 1, while the leaves dropped from normal trees of this species in October. The same trees also had a tendency to flower earlier in the spring. Both the late retention of leaves and earlier activity in the spring are due to the fact that with but few branches to support, the roots supply them with excessive stored food. On the

other hand, transplanting or anything else that interferes with the roots of the trees will also disturb the balance and may be more or less shown in the time of leafing or flowering. On city streets the leakage of gas mains often causes premature falling of the leaves and if not severe enough to kill the tree, may at least affect the functioning of the tree the following season.

Period covered by observations.....

Form 416.

U. S. Department of Agriculture Forest Service

Name of observer	
Residence	
General character of country.—Moley; seacoast. Situation of trees.—Level; slope (no	(County) (Town) runtains; foothills; plains; river val- orth, east, west, south); hilltop; river y, light, deep, shallow, moist, dry);
	ly to your particular locality and to observed.)
Approximate elevation above sea le Location of nearest Weather Bureau State if season was wet or dry, early	evelu stationv or late, etc
• • • • • • • • • • • • • • • • • • • •	, 02 2000, 000
DATE,	DATE.
DATE. 1. Swelling of buds	DATE. 8. Beginning of leaf falling
DATE. 2. Bursting of buds.	DATE.  8. Beginning of leaf falling  9. End of leaf falling
DATE.  1. Swelling of buds.  2. Bursting of buds.  3. Beginning of leafing out.	DATE.  8. Beginning of leaf falling  9. End of leaf falling  10. Beginning of seed ripening
DATE.  1. Swelling of buds.  2. Bursting of buds.  3. Beginning of leafing out.  4. General leafing out.	DATE.  8. Beginning of leaf falling  9. End of leaf falling  10. Beginning of seed ripening  11. General seed ripening
1. Swelling of buds. 2. Bursting of buds. 3. Beginning of leafing out. 4. General leafing out. 5. Beginning of blossoming.	8. Beginning of leaf falling
DATE.  1. Swelling of buds. 2. Bursting of buds. 3. Beginning of leafing out. 4. General leafing out. 5. Beginning of blossoming. 6. General blossoming.	8. Beginning of leaf falling
DATE.  1. Swelling of buds. 2. Bursting of buds. 3. Beginning of leafing out. 4. General leafing out. 5. Beginning of blossoming. 6. General blossoming. 7. Change in color of foliage.	8. Beginning of leaf falling
DATE.  1. Swelling of buds. 2. Bursting of buds. 3. Beginning of leafing out. 4. General leafing out. 5. Beginning of blossoming. 6. General blossoming. 7. Change in color of foliage. 14. Quantity of seed.	8. Beginning of leaf falling
1. Swelling of buds. 2. Bursting of buds. 3. Beginning of leafing out. 4. General leafing out. 5. Beginning of blossoming. 6. General blossoming. 7. Change in color of foliage. 14. Quantity of seed. 15. Quality of seed.	8. Beginning of leaf falling
DATE.  1. Swelling of buds. 2. Bursting of buds. 3. Beginning of leafing out. 4. General leafing out. 5. Beginning of blossoming. 6. General blossoming. 7. Change in color of foliage. 14. Quantity of seed. 15. Quality of seed. General remarks.	DATE.  8. Beginning of leaf falling.  9. End of leaf falling.  10. Beginning of seed ripening.  11. General seed ripening.  12. Beginning of seed falling.  13. End of seed falling.
DATE.  1. Swelling of buds. 2. Bursting of buds. 3. Beginning of leafing out. 4. General leafing out. 5. Beginning of blossoming. 6. General blossoming. 7. Change in color of foliage. 14. Quantity of seed. 15. Quality of seed. General remarks.	DATE.  8. Beginning of leaf falling.  9. End of leaf falling.  10. Beginning of seed ripening.  11. General seed ripening.  12. Beginning of seed falling.  13. End of seed falling.
1. Swelling of buds. 2. Bursting of buds. 3. Beginning of leafing out. 4. General leafing out. 5. Beginning of blossoming. 6. General blossoming. 7. Change in color of foliage. 14. Quantity of seed. 15. Quality of seed. General remarks.	DATE.  8. Beginning of leaf falling.  9. End of leaf falling.  10. Beginning of seed ripening.  11. General seed ripening.  12. Beginning of seed falling.  13. End of seed falling.
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1. Swelling of buds. 2. Bursting of buds. 3. Beginning of leafing out. 4. General leafing out. 5. Beginning of blossoming. 6. General blossoming. 7. Change in color of foliage. 14. Quantity of seed. 15. Quality of seed. General remarks.	DATE.  8. Beginning of leaf falling.  9. End of leaf falling.  10. Beginning of seed ripening.  11. General seed ripening.  12. Beginning of seed falling.  13. End of seed falling.

It is desirable to use the scientific names of the trees whenever they are known, since in different localities the same common names are often used to designate different species. It is much safer, however, to use a common name than to guess at the scientific name. If there is any doubt as to the species, a specimen should be sent to the Forest Service for identification.

Even if a species is quite common in a locality observations should preferably be based on a single tree, which should, however, be selected as an average tree for the species in the locality. By doing this the relation between the different functions can be more definitely determined than by making records of the average time of each function for a number of trees. Variation might be made in this procedure where the observer wished to make a careful comparison of the functions for different seasons. In such a case it would perhaps be better to select a tree or trees representing as nearly as possible average conditions the first year and in each succeeding year to make observations on the same trees. The size of trees should have but little if any influence on the time of the functions, but observations should not, however, be made on sprout or

coppice growth, at least not until it is several years old and the condition of the tree again becomes normal.

It is also important to take trees in average situations. Trees should not be selected which grow on very precipitous slopes, in narrow or closed ravines, along dry road-sides, along rocky or exposed ridges, or very close to houses and stables. Forest trees should be chosen whenever possible rather than trees growing in the open or on the edge of the forest.

A few definite suggestions will explain more clearly the different phases of tree life to be recorded and the method of making the observations.

Swelling of buds.—The date on which a majority of the buds are enlarged but still within their winter scales. The buds should be those of the outer part of the tree, since the buds near the trunk tend to develop prematurely, because of reflected heat. In order to make this observation it is necessary to examine carefully the winter condition of the buds, otherwise it is rather difficult to determine just when the swelling begins. Certain species—for instance, the alders—gradually enlarge their flower buds throughout the winter, and in such cases this data can not be secured.

Bursting of buds.—The date on which a majority of the buds expose the green of new leaves from between the winter scales. In the case of the trees which flower before leafing out this date must necessarily be the time that the flower buds open, and will be the same date as is recorded under the heading of "beginning of blossoming." However, as most trees blossom after the leaves appear, this date will ordinarily be earlier than the one recorded for the beginning of blossoming.

Beginning of leafing out.—The date on which the first leaves have straightened themselves out from the twisted form they had in the bud and turned up their upper surfaces.

General leafing out.—The date on which a majority of the leaves, especially the outer ones, have turned their upper surfaces upward. This is not the date that the leaves reach their full size. If the observer notes the date on which the leaves first put out reach approximately their full development, it should be recorded under "general remarks," but not as the time of "general leafing out."

Beginning of blossoming.—The date on which the first few flowers open and expose the stamens and pistils.

General blossoming.—The date on which the trees are in full bloom (the stamens and pistils easily visible in a majority of the opened flowers). Should the observer care to record more detailed information on flowering, the duration of flowering—that is, the dates of the first and last flowers on a single tree in a certain locality—can be noted under "general remarks." This information is often quite useful.

Change in color of foliage.—The date on which a majority of the leaves first begin to change color from the green of summer. Care should be taken not to confuse pre-

mature coloration resulting from drought or disease with the normal autumnal change of color. In many species the leaves remain green until the first frost, while in others the leaves ripen and change color before they are touched by frost. In the North the change in color is governed more by the first frosts than in the South.

Beginning of leaf falling.—The date on which the trees begin to shed their leaves fully. Care should also be taken here not to record premature defoliation due to insects or fungous disease.

End of leaf falling.—The date on which the trees are practically bare of leaves. A few leaves often hang on the tree in certain species for a considerable time after the general leaf fall, and in this case the date should not be the date given as the end of leaf falling. With the conifers it will be necessary to make very careful observations to determine this point accurately.

Beginning of seed ripening.—The date on which the first seeds or fruits ripen on several of the trees. Diseased trees often ripen their fruit prematurely and care must be taken not to record dates for such abnormal trees. No hard and fast rules can be laid down by which to determine when a fruit is ripe. In succulent fruits, color is a good indication of ripeness; in many others the fruit is ripe when it falls at a slight jar; in conifers when the cone begins to turn brownish the seeds should be examined, and if plump, brownish colored, and not milky when cut open, they are ripe.

General seed ripening.—The date on which the greater part of the seed on most of the trees is ripe.

Beginning of seed falling.—The date on which the seed first begins to fall in considerable quantities from most of the trees.

End of seed falling.—The date on which practically all has fallen. It is especially desirable to secure careful observations on the time of seed falling for trees that hold their fruits for some time after ripening, also for the seed falling of these species which retain their fruits but open them and allow the seed to escape.

Quantity of seed.—This can not be expressed absolutely, but should be indicated by some such general terms as "scarce," "medium," or "abundant."

Quality of seed.—This relates to the proportion of the seed which is capable of germination, and should be expressed by some such term as "poor," "fair," or "good." The condition of the seed can usually be determined by cutting open a number of the seeds for examination. If most of them are apparently sound, the quality should be described as good, while if many of them are hollow, shriveled up, or damaged by insects or disease, the quality should be described as poor.

The records obtained should be sent to the Forest Service once a year when all of the spaces on the form have been filled out. Thus, if the record begins with the falling of the leaves, it should be returned the next year just before the falling of the leaves begins. Duplicate records may be retained by observers and will be of interest in comparing the dates recorded from year to year.

Possibly in some species all of the desired observations can not be satisfactorily made by an inexperienced observer, and some may have to be omitted; but the records in all cases should be as complete and above all as accurate as possible.

Since any observation is without value unless the species for which it is made is known with absolute certainty, it is urgently requested that whenever there is the least doubt as to the species, specimens be sent to the Forester, Washington, D. C., for identification. It is not enough, for example, to know that a tree is an oak, a hickory, or a maple; the question is, what kind of an oak, hickory, or maple. Twigs with buds, leaves, flowers, or fruit are usually sufficient definitely to identify the species, and information will be gladly furnished.

The making of these records will assist the observer in acquiring a very accurate knowledge of the trees in his locality.

#### BOTANICAL RANGE OF TREES.

In order that the user of the accompanying charts may interpret them with reference to his own locality without looking up the range of the species elsewhere, the following brief description of the general range of each species is given. The complete range is given although the chart is compiled only from records for points in the United States.

Abies balsamea (L.) Mill. Balsam fir.

Interior of Labrador northwestward to Lesser Slave Lake, through Newfoundland, the maritime Provinces of Canada, Quebec, and Ontario, northern New England, northern New York, northern Michigan, northern Minnesota, northern and central Iowa, and along the Appalachian Mountains, from western Massachusetts and the Catskills of New York to the higher mountains of southwestern Virginia.

Acer negundo L. Boxelder.

Western Vermont and central New York, southward to northern Florida and westward to the eastern slope of the Rocky Mountains; to Utah, New Mexico, and eastern Arizona; infrequent east of the Appalachian Mountains; common in Mississippi Basin.

Acer pennsylvanicum L. Striped maple (Moosewood).

Eastern Quebec along the shores of Lake Ontario and the islands of Lake Huron to northeastern Minnesota; southward through the Atlantic States and along the Appalachian Mountains to northern Georgia.

Acer rubrum L. Red maple.

Quebec and Ontario to southern Florida; westward to western Wisconsin, western Iowa, and southeastern Texas.

Acer saccharinum L. Silver maple.

New Brunswick to southern Ontario, to western Florida; west-ward to eastern North Dakota and Nebraska, Kansas, and Oklahoma.

Acer saccharum Marsh. Sugar maple.

Newfoundland to Georgia; westward to Manitoba, Nebraska, and
Texas.

Acer spicatum Lam. Mountain maple.

Lower St. Lawrence to the Saskatchewan and Minnesota; southward to northern Georgia.

Aesculus glabra Willd. Ohio buckeye.

Along the western slope of the Alleghany Mountains from Pennsylvania to northern Alabama and westward through Ohio, Indiana, southern Iowa, southeastern Nebraska, eastern Kansas and Oklahoma.

Aesculus hippocastanum L. Horse chestnut.

A native of Asia, cultivated in United States.

Ailanthus glandulosa Desf. Tree of Heaven.

Native of China; has escaped from cultivation in parts of eastern United States, and is frequently seen in woods and thickets.

Amelanchier canadensis (L.) Medic. Serviceberry.

Newfoundland and along the shores of the Great Lakes to northern Florida; westward, Minnesota, Nebraska, Kansas, and Arkansas.

Asimina triloba (L.) Dunal. Papaw.

Southern Ontario to Florida; westward, western New York, Michigan, Kansas, and Texas.

Betula lenta L. Sweet birch.

Newfoundland, along the Saguenay River, to Ontario; in United States, southward to western Florida; westward, Iowa, Indiana, and Illinois, extending into Kentucky and Tennsessee.

Betula lutea Michx. Yellow birch.

Newfoundland and northern shores of the Gulf of St. Lawrence to the Valley of Rainy River; southward, northern Delaware, and northern Minnesota, and Alleghany Mountains to North Carolina and Tennessee.

Betula papyrifera Marsh. Paper birch.

Labrador to southern shores of Hudson Bay and Great Slave Lake to New York and northern Pennsylvania, central Michigan, central Iowa, northern Nebraska, Black Hills of South Dakota, northern Montana, and northwestern Washington.

Betula populifolia Marsh. White or gray birch.

From Nova Scotia, New Brunswick, and the valley of the St. Lawrence River southward to Delaware and westward through eastern Pennsylvania to western New York.

Carpinus caroliniana Walt. Blue beech.

Quebec to Georgian Bay, to Florida; westward to Minnesota, Nebraska, Kansas, Oklahoma, and Texas.

Castanea dentata (Marsh) Borkh. Chestnut.

Southern Maine along the Winooski River, Vermont, southern shores of Lake Ontario to Michigan, Delaware, and Indiana, Alleghany Mountains to Alabama; also in Mississippi, Kentucky, and Tennessee.

Catalpa catalpa (L.) Karst. Common catalpa.

Supposed to be indigenous to southwestern Georgia, western Florida, central Alabama, and Mississippi, but cultivated and naturalized elsewhere east of the Rocky Mountains.

Catalpa speciosa Engelm. Hardy catalpa.

Southern Illinois and Indiana, western Kentucky, and Tennessee, southeastern Missouri, and northeastern Kansas. Widely cultivated in eastern and central United States.

Celtis occidentalis L. Hackberry.

St. Lawrence River near Montreal westward to southern Ontario. In the United States, Massachusetts Bay to northwestern Nebraska, North Dakota, southern Idaho, Washington, Oregon, Nevada, New Mexico; southward to Florida, Missouri, and eastern Texas.

Cercis canadensis L. Redbud.

Delaware River, New Jersey, southward to Florida, northern Alabama and Mississippi; westward, Ontario, Nebraska, and eastern borders of Oklahoma, Louisiana, and Texas.

Cladrastis lutea (Michx. f.) Koch. Yellowwood.

Central Kentucky and central Tennessee, northern Alabama, North Carolina. Infrequent and very local.

Cornus florida L. Flowering dogwood.

Eastern Massachusetts to Florida; westward to southern Ontario, Kansas, and Texas.

Cratægus coccinea L. Scarlet haw.

Newfoundland to Connecticut; along St. Lawrence River to western Quebec.

Diospyros virginiana L. Persimmon.

Connecticut to Florida, southern Alabama, Mississippi, and from southern Ohio to Iowa, Missouri, Arkansas, Louisiana, Kansas, Oklahoma, and Texas. Fagus atropunicea (Marsh) Sud. Beech.

Restigouche River, the northern shores of Lake Huron and northern Wisconsin, southward to western Florida; through southern Illinois and southeastern Missouri to the valley of the Trinity River, Tex.

Ginkgo biloba Linn. Maidenhair tree.

Introduced from China. Planted throughout the United States.

Gleditsia triacanthos L. Honey locust.

Mountains of Pennsylvania, westward through Ontario and Michigan to southeastern Minnesota, Nebraska and Kansas, Oklahoma; southward to Alabama and Mississippi and Texas.

Gymnocladus dioicus (L.) Koch. Coffeetree.

Central New York and western Pennsylvania, through southern Ontario and southern Michigan, to the Minnesota River, eastern Nebraska, eastern Kansas, southwestern Arkansas, Oklahoma, and middle Tennessee. Nowhere plentiful.

Hamamelis virginiana L. Witch-hazel.

Nova Scotia, New Brunswick, and the St. Lawrence River to southern Ontario, Wisconsin, and eastern Nebraska and eastern Texas; southward to Florida.

Hicoria alba (L.) Britton. Mockernut hickory.

Ontario southward to Florida; westward to eastern Kansas, Oklahoma, and eastern Texas.

Hicoria glabra (M.) Britton. Pignut hickory.

Southern Maine, southern Ontario, southward to Florida. Alabama, and Mississippi; westward through southern Michigan to Nebraska, Missouri, Kansas, Arkansas, Oklahoma, and Texas.

Hicoria ovata (M.) Britton. Shagbark hickory.

Southern Maine to the St. Lawrence River near Montreal, south-westward, the northern shores of Lake Erie and Lake Ontario to Michigan, central Minnesota, Nebraska, Kansas, Oklahoma, and Texas; southward to Pennsylvania and Delaware, through the Appalachians to Florida, Alabama, and Mississippi.

Ilex opaca Ait. Holly.

Coast of Massachusetts to Florida; westward to Missouri, Arkansas, Louisiana, eastern Texas.

Juglans cinerea L. Butternut.

Southern New Brunswick and Ontario to eastern Dakota, southeastern Nebraska, central Kansas, northern Arkansas, and southward to northern Georgia and northern Alabama.

Juglans nigra L. Black walnut.

Ontario to western Massachusetts, southern Michigan and Minnesota, central and northern Nebraska, eastern Kansas to the valley of the San Antonio River, Tex.; southward through the Appalachian Mountains to western Florida, central Alabama, and Mississippi.

Juniperus virginiana L. Red cedar.

Southern Nova Scotia and New Brunswick to Georgia, Alabama, and Mississippi; westward to eastern Dakota, eastern Nebraska and Kansas, Oklahoma, and eastern Texas.

Kalmia latifolia L. Mountain laurel.

New Brunswick to the northern shores of Lake Erie, southward western Florida and western Louisiana.

Larix laricina (Du Roi) Koch. Tamarack.

From the Arctic Circle, southward through Canada and the northern States to Pennsylvania, West Virginia, Indiana, Illinois, and central Minnesota.

Liquidambar styraciflua L. Sweet gum (red gum).

Connecticut to Florida; westward to Arkansas, Oklahoma, and Texas.

Liriodendron tulipifera L. Yellow poplar.

Vermont to Florida, Alabama, and Mississippi; westward to Michigan, Missouri, and Kansas.

Magnolia acuminata L. Cucumber tree.

Western New York, southward to southern Alabama; westward through southern Ontario and southern Illinois.

Morus rubra L. Red mulberry.

> Western Massachusetts to Florida and westward to southern Ontario and central Michigan, southeastern Nebraska, eastern Kansas, and valley of the Colorado River, Tex.

Nyssa sylvatica Marsh. Black gum.

Maine to southern Ontario, southward to Florida and westward to central Michigan and southeastern Missouri.

Picea canadensis (Mill) B. S. P. White spruce.

Labrador to the shores of the Arctic Sea, southward in the United States to Maine, northern New Hampshire, Vermont, and New York, northern Michigan, Wisconsin, the Black Hills of South Dakota, and northern Montana.

Pinus austriaca (Hoss). Austrian pine.

A native of Europe. Has been widely planted in northern and central United States.

Pinus strobus L. White pine.

> Newfoundland to Manitoba, through the northern States to Pennsylvania, Illinois, Iowa; southward to eastern Kentucky, Tennessee, and northern Georgia.

Pinus sylvestris L. Scotch pine.

A native of Europe and Asia, cultivated in United States and Canada.

Platanus occidentalis L. Sycamore.

Southeastern New Hampshire, northern Vermont, and the northern shores of Lake Ontario; westward to eastern Nebraska, Kansas; southward to northern Florida, central Alabama and Mississippi, through Texas to the valley of Devils River.

Populus deltoides Marsh. Cottonwood.

Quebec, through western New England and New York, Pennsylvania west of the Allegheny Mountains; southward to Florida; westward, southern Alberta to New Mexico.

Populus grandidentata Michx. Largetooth aspen.

Nova Scotia to northern Minnesota; southward to North Carolina, central Kentucky, Tennessee, Indiana, and Illinois.

Populus tremuloides Michx. Quaking aspen.

Labrador to Alaska; southward to eastern Tennessee; westward scatteringly through the States north of Missouri and Kansas to the Rocky Mountain region, when it becomes more plentiful. Along the Pacific coast and the Rockies it ranges from the extreme northwest to Mexico. (Note.-In the chart no observations were reported for quaking aspen west of the Missouri River.)

Prunus americana Marsh. Wild plum.

Southern New Hampshire, northwestern Massachusetts, southward to Florida; westward to Montana, Wyoming, Colorado, New Mexico, and Texas.

Prunus serotina Ehrh. Black cherry.

From Nova Scotia and Ontario to eastern North Dakota, eastern Nebraska; southward to eastern Texas and Florida; on the mountain range of western Texas, southern New Mexico and Arizona to Colombia and Peru.

Prunus virginiana L. Choke cherry.

From Newfoundland and Labrador west to British Columbia and south through Alberta, Montana, to eastern New Mexico, northern Mexico and Florida.

Ptelea trifoliata L. Hop tree.

> Northern shore of Lake Ontario southward to Florida; westward, Minnesota to New Mexico and Texas to the Valley of the Mimbres River.

Quercus alba L. White oak.

Southern Maine to southwestern Quebec; westward through Ontario, lower Michigan, and Minnesota to Nebraska, Kansas, and Texas, southward to northern Florida.

Quercus macrocarpa Michx. Bur oak.

Nova Scotia to Manitoba. In United States westward from Maine to North Dakota; southward, Georgia and Texas.

Quercus rubra L. Red oak.

> Nova Scotia to Lake Huron and westward to Nebraska and central Kansas; southward to northern Georgia.

Quercus velutina Lam. Black oak (yellow oak).

Maine to Minnesota; southward to northern Florida, southern Alabama and Mississippi, southwestern Nebraska, eastern Kansas, Oklahoma, and eastern Texas.

Quercus virginiana Mill. Live oak.

Southeastern Virginia along the coast and islands to southern Florida, and along the shores of the Gulf of Mexico to northeastern Mexico.

Robinia pseudacacia L. Black locust.

In Appalachian region from central Pennsylvania to northern Georgia (extensively planted in eastern and central United States).

Salix nigra Marsh. Black willow.

Throughout the United States.

Sassafras sassafras (L.) Karst. Sassafras.

> Vermont to Florida; westward, Ontario to valley of the Brazos River, Texas.

Taxodium distichum (L.) Rich. Bald cypress.

Swamps and wet depressions of pine barrens from Delaware to Florida and southern Illinois and Indiana to Texas.

Tilia americana L. Basswood.

> New Brunswick to the eastern shores of Lake Superior and to the southern shores of Lake Winnipeg and the valley of the Assiniboine River. In the United States, south to Georgia and westward from eastern North Dakota to Oklahoma.

Tsuga canadensis (L.) Carr. Hemlock.

Nova Scotia to northwestern Alabama; westward to eastern Minnesota.

Ulmus americana L. White elm.

> Southern Newfoundland to Florida; westward to the Black Hills of South Dakota, through western Nebraska, western Kansas, Oklahoma, and Texas.

Ulmus pubescens Walt. Slippery elm.

Valley of the St. Lawrence River to Florida and westward from North Dakota to Texas.

Ulmus racemosa Thomas. Cork elm.

Quebec to northern New Jersey; westward through northern New York, southern Michigan, central Wisconsin, northeastern Nebraska, and western Missouri.

## BIBLIOGRAPHY.

The following publications contain statements concerning the flowering, leafage, or seed ripening of trees in the United States and furnish a portion of the records from which the accompanying charts were compiled:

Beal, William James.

Michigan flora. 3d ed. Lansing, 1904. 147 p.

Brendel, Frederick.

Flora Peoriana; the vegetation in the climate of middle Illinois Peoria, Ill., 1887. 89 p.

Britton, Nathaniel Lord.

When the leaves fall, and when the leaves appear. Bull., Torrey botanical club, New York, 1878, 6: 211-213; 235-237.

Manual of the flora of the Northern States and Canada. New York, 1901. 1080 p.

North American trees. New York, 1908. 894 p. il.

Britton, Nathaniel L. & Brown, Addison.

An illustrated flora of the northern United States, Canada, and the British possessions. New York, 1898. 3 v. il.

Connecticut Botanical Society.

Catalogue of the flowering plants and ferns of Connecticut growing without cultivation. Hartford, 1910. 569 p. (Connecticult geol. and nat. hist. surv., Bull. 14.)

Darlington, William.

Flora Cestrica; an attempt to enumerate and describe the flowering and filicoid plants of Chester County in the State of Pennsylvania. West Chester, 1837. 640 p.

Agricultural botany; an enumeration and description of useful plants and weeds. Philadelphia and New York, 1847. 270 p.

Gattinger, August.

Tennessee flora with special reference to the flora of Nashville; phaenogams and vascular cryptogams. Nashville, 1887. 109 p. The medicinal plants of Tennessee exhibiting their commercial value. Nashville, 1894. 128 p.

Gray, Asa.

New manual of botany; a handbook of the flowering plants and ferns of the central and northeastern United States and adjacent Canada. 7th ed. New York, 1908. 926 p. il.

Halsted, Byron D.

Prairie flowers of early spring. Pop. sci. moly., New York, 1887, 31: 84-97.

Hervey, E. Williams.

Flora of New Bedford and the shores of Buzzards Bay. New Bedford, 1911. 137 p.

Hitchcock, A. L.

Time of blooming of spring and early summer plants. Bull. Iowa agric. coll., Ames, Iowa. Nov., 1886. 48-52.

Hough, Franklin Benjamin.

Observations upon periodical phenomena in plants and animals from 1851 to 1859. U. S. Patent Office. Results of meteorological observations, 1854-1859, v. 2, pt. 1, p. 1-232.

Hough, Romeyn Beck.

Handbook of the trees of the Northern States and Canada east of the Rocky Mountains. Lowville, N. Y., 1907. 470 p. il.

uish, H. C.

Comparative phenological notes. Ann. rpt. Missouri State horticultural society, Jefferson City, 1897, 40: 325-328.

Mackay, A. H.

Phenological observations in Canada. Canadian recrd. sci., Montreal, 1899, 8: 71-84.

Maine Forest Commission.

Forest trees of Maine and how to know them. Waterville, Me., 1908. 62 p. il.

Mohr, Charles.

Plant life of Alabama; an account of the distribution, modes of association, and adaptations of the flora of Alabama, together with a systematic catalogue of the plants growing in the State. Montgomery, 1901. 921 p. il., maps.

Mohr, Charles & Roth, Filibert.

Timber pines of the Southern United States. Washington, 1896.

160 p. pl., il. (U. S. Forest Service, Bulletin 13.)

Newhall, Charles Stedman.

The trees of northeastern America. New York, 1890. 250 p. il. Pammel, L. H.

Phænological notes. Proc., Iowa acad. sci., Des Moines, 1890-92, v. 1, pt. 2, p. 87-88; pt. 3, p. 46-48.

Phænological notes. Bull., Torrey bot. club, New York., 1892. 19: 375-382.

Peterson, Maude G.

How to know wild fruits; a guide to plants when not in flower by means of fruit and leaf. New York, 1905. 340 p. il., pl. Richman E S

Calendar of trees and shrubs. Bull., Iowa agric. coll., Ames, Iowa. Nov., 1886, p. 44-47.

Sargent, Charles Sprague.

The silva of North America. 14 v. pl. Boston, 1891-1902.

Scribner, Frank Lamson.

Ornamental and useful plants of Maine. Augusta, Me. 1875. 85 p. il.

Spalding, Volney Morgan and others.

The white pine. Washington, 1899. 185 p. il., pl. (U.S. Forest Service. Bulletin 22.)

Torry, John.

Catalogue of plants growing spontaneously within thirty miles of the city of New York; published by the Lyceum of natural history of New York. Albany, N. Y. 1819. 100 p.

Trelease, William.

When the leaves appear and fall. Ann. rpt. Wisconsin agric. exp. sta., Madison, Wis., 1883, p. 56-73; 1884, p. 59-66.

Tucker, Arabella H.

Trees of Worcester. Worcester, Mass., 1894. 98 p. pl.

Ward, Lester Frank.

Guide to the flora of Washington and vicinity. Washington, 1881. 264 p. map. (U. S. National museum, Bulletin 22.)

Weed, Clarence Moores, & Emerson, A. S.

Our trees, how to know them. Philadelphia, 1908. 298 p. pl.

Whitten, T. C.

Phenological notes at the Missouri botanical garden, for 1892 and 1893. Ann. rpt. Missouri bot. gardn., St. Louis, 1894, 5: 123-135.

Wood, Alphonse.

The American botanist and florist; including lessons in the structure, life, and growth of plants. New York, 1870. 392 p. il.

Wright, John, & Hall, James.

Catalogue of plants growing without cultivation in the vicinity of Troy. Troy, N. Y., 1836. 42 p.

The following list includes practically all the publications relating more or less directly to the phenology of trees to be found in the Library of the Department of Agriculture or in the Library of Congress:

Bailey, Liberty Hyde.

Some emphatic problems of climate and plants. (In his Survival of the unlike, New York, 1896. 288-310.)

Instructions for taking phenological observations. (United States Weather Bureau. Monthly weather review, Sept., 1896, 24: 328-331.)

Berghaus, A.

Adaptation to climate. (Pop. sci. moly, New York, 1884, 25: 396-399.)

Blodget, Lorin.

Climatology of the United States. Philadelphia, 1857. 536 p.

Brendel, Frederick.

On meteorology in connection with botanical investigations. (Trans., Illinois state agricultural society, Springfield, 1859, 8: 671-675.)

Brick, C., & Schmid, B.

Phänologie. [Bibliography.] (Allgemeine Forst- und Jagd-Zeitung, Frankfurt a. M., supplement, 1893, 42-43; 1894, 75; 1895, 45; 1896, 85; 1897, 79; 1898, 79-80; 1899, 89-90; 1900, 83-84; 1901, 87.)

Britton, Nathaniel Lord.

When the leaves fall, and when the leaves appear. Bull., Torrey botanical club, New York, 1878, 6: 211-213; 235-237.

Brückner, Eduard.

Klimaschwankungen seit 1700 nebst Bemerkungen über die Klimaschwankungen der Diluvialzeit. Vienna, 1890. 324 p. il.

Michigan. State board of agriculture.

Calendar of trees and shrubs. Annual report of the secretary, 1886-1887, Lansing, 26: 119-127.

Caspary, Robert.

Ueber die Zeiten des Aufbrechens der ersten Blüthen. Physikalisch-ökonomische Gesellschaft zu Königsberg, Schriften, 1882, 23: 115-126.

Clarke, Henry L.

The philosophy of flower seasons. (American naturalist, Boston, Sept., 1893, 27: 769-781.)

Comments on the phenological observations conducted in the public schools of Nova Scotia, during the school years ended 30th June, 1904-1905, by the educational staff of phenologists. (Journal of education, Toronto, Apr., 1905, 72-85; Apr., 1906, 58-71.)

Constantin, Julien.

Les végétaux et les milieux cosmiques; adaptation, évolution. Paris, 1898. 292 p. il.

Crozier, Arthur Alger.

Modification of plants by climate. Ann Arbor, Mich., 1885. 35 p. Darwin, Charles.

Direct and definite action of the external conditions of life; acclimatisation. (In his Variation of animals and plants under domestication. New York, 1897, v. 2, p. 260-271, 295-305.)

On the indications of a late or early autumn given by late flowering indigenous plants. (American journal of science, New Haven, 1820, (?) 2: 255-258.)

Dudley, William R.

The Cayuga flora. 132 p. Ithaca, N. Y., 1886. (Cornell university bulletin: Science, 2.)

Dunwoody, H. H. C.

Signal service tables of rainfall and temperature compared with crop production. 15 p. Washington, 1882. (U. S. Signal Service. Prof. paper 10.)

Ebermayer, Ernst Wilhelm.

Instructionen für phänologische und klimatologische Beobachtungen. Aschaffenburg, 1868. 15 p.

Forry, Samuel.

Researches in elucidation of the distribution of heat over the globe, and especially of the climatic features peculiar to the Am. jour. sci. and arts, 1844, region of the United States. 47: 18-50, 221-241.

Halsted, Byron D.

Prairie flowers of early spring. Pop. sci. moly., New York, 1887, **31**: 84-97.

Harrington, Mark W.

The advent of spring. Harper's mag., New York, May, 1894, 88: 874-879.

Harshberger, John William.

Phytogeographic survey of North America. 790 p. il., pl., map. Leipzig, 1911. (In Engler, A. & Drude, O. Die Vegetation der Erde, pt. 13.)

The origin of our vernal flora. Science, New York, 1895. (N. S.), 1: 92-98.

Henderson, Peter.

Seeds; geographical distribution of the localities where they are grown in the United States. (In his Handbook of plants, New York, 1881, p. 206-208.)

Henslow, George.

Origin of plant structures by self-adaptation to environment. London, 1895. 256 p. (International scientific series, v. 77.)

Hervey, E. William.

Flora of New Bedford and the shores of Buzzards Bay. New Bedford, Mass., 1911. 137 p.

Time of blooming of spring and early summer plants. Iowa agricultural college, Ames, Iowa, Bulletin, Nov., 1886: 48-52.

Vergleichende phänologische Karte von Mittel-Europa. Pet. Mitt'l'n'g., Gotha, 1881, 27: 19-26.

Ueber den praktischen Werth phänologischer Beobachtungen. (Allgemeine Forst- und Jagd-Zeitung, Frankfurt, a. M., 1889, **65**: 113-20.)

Ueber den phänologischen Werth von Blattfall und Blattverfärbung. Allg. Forst- und Jagd-Ztng., Frankfurt, a. M., 1888, 64: 230-233.

Hough, Franklin Benjamin.

Observations upon periodical phenomena in plants and animals from 1851 to 1859. (U. S. Patent office. Results of meteorological observations, 1854-1859, v. 2, pt. 1, p. 1-232.)

Ihne, Egon, & Hoffmann, Hermann.

Beiträge zur Phänologie. Giessen, 1884. 178 p.

Influence of climate on trees. In Encyclopedia Britannica, 8th ed., 1859, 17: 755.

Irish, H. C.

Comparative phenological notes. Annual report, Missouri state horticultural society, Jefferson city, 1897, 40: 325-328.

Italy. Direzione generale dell' agricoltura.

Osservazioni fenoscopiche sulle piante. Roma, 1887. 437 p.

Jellet, Edwin.

Spring flowers near Philadelphia. Meehan's Monthly, Germantown, Pa., June, 1894, 4: 83.

Kuntze, Carl Otto.

Die Schutzmittel der Pflanzen gegen Thiere und Wetterungunst und die Erage vom salzfreien Urmeer; Studien über Phytophylaxis und Phytogeogenesis. Leipzig, 1877. 151 p.

Lachmann, W.

Die Entwickelung der Vegetation durch die Wärme. Jahresb., Schles. Gesells. f. vaterländische Cultur, Breslau, 33: 1855.

Le climat de la Belgique en 1891-1894. 4 v. Bruxelles, 1892-1895.

Linsser, Carl.

Die periodischen Erscheinungen des Pflanzenlebens in ihren Verhältniss zu den Wärmeerscheinungen. Mem., Ac. imp. d. sci., St.-Petersbourg, 1867, no. 7 (7), 11: 35.

Mackay, A. H.

Phenological observations in Canada. Canadian rec. sci., Montreal, 1899, 8: 71-84.

Phenological observations in Nova Scotia and Canada, 1895-1904. Trans., Nova Scotia inst. sci., Halifax, 1896-1905, 9-11, pt. 3.

Meehan, Thomas.

On the uniformity of relative characters between allied species of European and American trees. Proc., Ac. nat. sci., Philadel. phia, 1862, 14: 10-12.

Merriam, C. Hart.

Laws of temperature control. Nat. geogr. mag., Washington, December, 1894, 6: 229-238, 3 maps.

Naudin, Charles, & Müller.

Manuel de l'acclimateur. Paris, 1887. 565 p.

Pammel, L. H.

Climate and plants. Iowa weather and crop service. Monthly review, Oct., 1891. 6-12.

Phænological notes. Proc., Iowa ac. sci., Des Moines, 1890-1892, 1, pt. 2: 87-8; pt. 3: 46-43.

Phænological notes. Bull., Torrey bot. club, New York, 1892, **19**: 375-82.

Phenological observations, 1902, Nova Scotia; notes and comments on the schedules by the phenological compiling staff. Jour. educ., Toronto, Apr., 1903. 89-98.

Poselger, H.

Beitrag zur Blüthezeit der Gewächse. Monatschrift, Verein z. Beförd. des Gartenbaues i. d. kgl. preuss. Staaten, Berlin, 1884, 24: 204-205.

Preston, T. A.

Report on the phenological observations for 1883. Quart. jour., R. met. soc., London, 1884, 10: 52-66.

Phénomènes périodiques des plantes. (In his Sur le climat de la Belgique, Bruxelles, 1849, v. 1, chap. 4.)

Richman, E. S.

Calendar of trees and shrubs. Bull., Iowa agricultural college, Ames, Iowa, Nov., 1886, p. 44-47.

## Robertson, Charles.

Harshberger on the origin of our vernal flora. Science, New York, 1895, (N. S.) 1: 371-375.

The philosophy of flower seasons, and the phænological relation of the entomophilous fauna and the anthophilus insect fauna. Am. nat., Boston, 1895, 29: 97-117.

Taylor, J. E.

Origin of our vernal flora. Bot. gaz., Chicago, 1882, 7: 146-147. Trelease, William.

When the leaves appear and fall. Ann. rep., Wis. agr. exp. sta., Madison, 1883: 56-73; 1884: 59-66.

Vanderlinden, E.

Die periodischen Vegetationserscheinungen in ihren Beziehungen zu den klimatischen Variationen. Centralbl. f. d. ges. Forstw., Wien, 1911, 37: 420-422. Review in Forestry quarterly, Cambridge, Mass., 9, no. 1.

## Völcker, Karl.

Untersuchungen über das Intervall zwischen der Blüthe und Fruchtreife von Æsculus hippocastanum und Lonicera tartarica. Giessen, 1891. 43 p.

## Waldo, Frank.

Meteorology applied to agriculture. (In his Modern meteorology, London, 1893, p. 421-452.)

## Whitten, J. C.

Phenological notes at the Missouri botanical garden, for 1892 and 1893. Ann. rep., Missouri botanical garden, St. Louis, 1894, 5: 123-135.

## Woods, Albert F.

Observations on the cottonwood. Bull., Nebraska agricultural experiment station, Lincoln, 1889, 11: 93-97.





PHENOLOGICAL DATES AND METEOROLOGICAL DATA RECORDED BY THOMAS MIKESELL AT WAUSEON, FULTON COUNTY, OHIO.

Compiled and edited by J. WARREN SMITH.



# II. PHENOLOGICAL DATES AND METEOROLOGICAL DATA RECORDED BY THOMAS MIKESELL BETWEEN 1873 AND 1912 AT WAUSEON, OHIO.

By J. WARREN SMITH, Professor of Meteorology.

[Dated: Columbus, Ohio, Sept. 30, 1914.]

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## INTRODUCTION.

## PHENOLOGICAL OBSERVATIONS.

By Charles Fitzhugh Talman, Professor of Meteorology.

Phenological observations have generally been neglected in the United States. The one great exception to this statement is the voluminous series of reports collected by the late Prof. Franklin B. Hough, viz, (1) a series of observations made in New York State, covering the years 1850-1863, which were published by the New York Regents, and (2) a series covering the country at large, for the years 1851-1859, which were collected under the auspices of the Patent Office and the Smithsonian Institution, and published by the Patent Office. Since Hough's time only desultory attempts have been made to establish any extensive system of collecting Phenological observations in the United States. Some suggestions on this subject, together with a list of plants especially adapted for observation in this country, were Published by Prof. L. H. Bailey in the Monthly Weather Review, September, 1896, 24:328-331. A valuable contribution to the science of phenology was Cleveland Abbe's First Report on the Relation between Climates and Crops (Weather Bureau Bulletin 36), published in 1905, which deals chiefly with the philosophical aspects of the subject, such as the question of "thermal constants," etc., the extensive collection of ordinary field Observations of periodic phenomena which accompanied the original report have not yet been published. Quite recently the Bureau of Statistics of the United States Department of Agriculture began publishing a series of bulletins on the dates of planting and harvesting various crops in the United States, but only one of these has yet been issued.<sup>1</sup>

In the Old World phenological observations are collected systematically in several countries, and have already made possible the production of some very interesting and instructive phenological charts. The leading phenological organization is the one directed by Prof. E. Ihne, of Darmstadt, Germany, which now embraces a corps of 126 observers in Germany and Austria-Hungary, besides one each in England, Russia and Spain, whose observations are published annually in a work entitled "Phænologische Mitteilungen," now in its thirty-first year. This work also contains an annual bibliography of current phenological literature, besides some memoirs on phenological subjects.

There is also a large corps of phenological observers in the British Isles connected with the Royal Meteorological Society, and their observations are the subject of a report published annually in the quarterly journal of that society. The last report showed a total of 124, observers. In Holland there is a corps of 19 phenological observers; Bohemia has 58. Observations are also made regularly at a number of stations in Finland, and there is a corps of observers in Nova Scotia. A particularly

<sup>&</sup>lt;sup>1</sup> Covert, J. R. Seedtime and harvest: Cereals, flax, cotton, and tobacco. Washington, 1912. (U. S. Bureau of Statistics, Bulletin 85.)

valuable series has been maintained for many years by the Royal Observatory of Belgium, at Uccle near Brussels. Very elaborate phenological observations were maintained in Belgium under the direction of Quetelet, who drew up the first set of phenological instructions and gave definite form to the science of phenology, which had been founded by Linnæus in the middle of the eighteenth century. So far as cultivated plants are concerned, probably the most elaborate system of phenological observations in the world is that now maintained by the Meteorological Bureau of the Russian Ministry of Agriculture, under Prof. Brounov. This service has stations all over Russia, at which observations of the growth of cultivated plants are made in conjunction with meteorological observations, from instruments installed in the fields, as close as possible to the plants in question.

The dearth of such observations within the confines of the United States, and the length and completeness of Mr. Mikesell's observations at Wauseon, Ohio, make them of unusual interest and value.

### THOMAS MIKESELL,

The observer, Thomas Mikesell, was born on the farm 1 mile north of where Wauseon, Ohio, now stands in Fulton County but then Lucas County. His parents, William and Margaret (Boyes) Mikesell, came from western Pennsylvania in April, 1837, and settled in the forest.

He attended country schools until 14 years of age and then went to the high school at Wauseon, 1 mile distant. At that time the Wauseon High School had but two rooms. In June, 1863, he enlisted in Company H, Eighty-sixth Ohio Volunteer Infantry and served with it until February 10, 1864. After leaving the Army Mr. Mikesell resumed his high-school course and in 1866 his school days ended; not so his study of nature.

For several winters Mikesell taught elementary school in Ohio, Iowa, and northern Missouri; then he returned to Wauseon in the fall of 1869. From this time on he worked on the farm, retiring from active life in the spring of 1902. In November, 1873, he married Miss Martha Herriman, but no children have come to this union.

In 1889 he was elected secretary of the Fulton County Fair and for 16 consecutive years he continued to serve in that capacity. In 1902 he was appointed a corn and wheat region observer by the United States Weather Bureau and that same year, because of failing health, he was obliged to give up his farm and move to Wauseon, where he still resides.

Meteorological observations.—In 1865 Mr. Mikesell began to be particularly interested in the weather and at that time he began to study Brocklesby's Meteorology. A little later, in 1868, he secured a copy of Loomis' Treatise on Meteorology and immediately afterwards began himself to keep a journal or record of the weather conditions. After returning to Wauseon in the fall of 1869 he secured a few instruments and began systematic obser-

vations which he has maintained until the present time. There is scarcely an observation lost during all these 45 years.

He continued to read extensively in science and in history; in the early summer of 1870 he even decided to enlist in the weather service of the United States Signal Corps just starting under Gen. A. J. Myer, but finally he gave up that plan. In 1875 he began the study of birds, and since 1883 he has kept a very complete record of the migrations of a large number of birds. Beginning in 1884 he sent reports of bird migrations to the American Ornithologists' Union and later to the Division of Economic Ornithology of the United States Department of Agriculture. He was elected an associate member of the Ornithologists' Union in November, 1885.

When the Ohio Meteorological Bureau was organized in 1882 Mr. Mikesell became one of its first observers. In the annual report of that bureau for 1889 he published an article wherein, under the title "Notable Meteorological Events," he gave well-authenticated accounts of important weather conditions from the earliest settlement of Fulton County in 1834.

Phenological observations.—His phenological observations were begun in 1883 and have been continued most of the time since that year except when too much work caused neglect of some of the records. Mr. Mikesell states that he began to keep the records for his own satisfaction, but as the work continued he came to think that some day they might be of some use to others. He has expressed his pleasure in keeping these records with the feeling that thereby he has helped to increase knowledge of this world of ours.

The observations published in this present supplement are but a portion of the records that this one man has maintained during his busy life. They constitute one of the most complete and reliable local records of which we have knowledge, as to the development of plant life and the migrations of birds and animals. Quietly, carefully, conscientiously, this man has merely kept his eyes open to see and systematically recorded the movements of nature about him year after year. He has done what thousands of other men might have done, but which no other one has done. The writer believes that science owes a great debt to such a man, that all honor is due him, and that the name of Thomas Mikesell should be set high among the faithful students of nature in this country.

WAUSEON, OHIO.

Wauseon is located in central Fulton County in northwestern Ohio (lat. 41° 36′ N., long. 84° 07′ W.). Fulton County is included between parallels 41° 30′ and 41° 41′ N. and meridians 83° 55′ and 84° 20′ W.; its area is about 15 by 25 miles or 375 square miles. Mr. Mikesell's house and farm from the beginning of observations until about 1901 were a mile north of Wauseon and 35 miles west of Toledo, Ohio. The place has an altitude of 225 feet above Lake Erie and about 800 feet above sea level.

The land slopes slightly toward the southeast; and his house stood at the southern edge of the second beach of the glacial Lake Erie.

The soil is of varying character. There are ridges of yellow sand, clay ridges, and level stretches of white clay; a black clay loam has a blue clay subsoil, and there is also sandy loam with clay beneath. There are a few gravel ridges and a little red clay in patches. Some hollows formerly held water until late in the summer; these are now drained and are found to contain more or less muck overlying clay or white sand or marl. All these varieties of soil are often found within a radius of 30 rods

When first settled, the county was covered with a heavy growth of timber, mostly white oak, red oak, burr oak, swamp white oak, pin oak, and some chestnut oak; six species of hickory, black walnut, butternut, tulip tree (or poplar), buttonwood, white and black ash, sassafras, red and white elm, coffee tree, honey locust, sugar maple, red and white maple, and cottonwood. The smaller growth consisted mainly of prickly ash, wahoo, bladder nut, four species of sumac besides the poison ivy, several species of thorn, black haw, arrowwood, cranberry tree, the dogwoods, witch-hazel, ironwood, water beech, several species of willows, quaking aspen, and some others.

The wild fruits are elderberries, huckleberries (two species), black and red raspberries, blackberries, dewberries, black currants, three species of gooseberries, cherries, plums, crab apples, grapes, etc. Nearly all the cultivated fruits of this latitude are raised there.

In general the vegetables and grains of the whole Temperate Zone are cultivated here and nearly all do well. The minor vegetation is about the same as in all northern Ohio and includes a great many species.

Until 1901 the dates of farm operations and of the advance of vegetation were observed on Mr. Mikesell's own fields and farm. He then moved to the village of Wauseon and for the remainder of the period the records are from fields near his residence, the same field being observed throughout the entire season. The instruments used have been reliable and well exposed at all times.

## / OBSERVATIONS.

Instruments.—From the beginning of his observations until October 16, 1882, all temperature observations were made with a Taylor & Richardson thermometer (Rochester, N. Y.), which was not self-registering. Mr. Mikesell once tested its freezing point (32°F.) and found it correct.

Between October 16, 1882, and October 17, 1903, he employed standard dry-bulb and wet-bulb thermometers, also maximum and minimum thermometers, all made by J. & H. J. Green (Brooklyn, N. Y.), and furnished him by the Ohio Myteorological Bureau.

Since October 17, 1903, he has used the standard maximum and minimum thermometers furnished by the United States Weather Bureau to its cooperative observers; but has continued to also observe the dry- and wetbulb thermometers made by Green.

The raingage used by Mikesell from the beginning of his observations until October 16, 1882, was made under his directions, by a tinner. The tube was 1 inch in diameter and the receiving funnel had an opening ten times the area of the cross section of the tube. This homemade gage he tested by comparing it with the official gage which was sent him in October, 1882, by the Ohio Meteorological Bureau, and found his old gage to be correct. The second gage was a standard gage with its funnel opening 8 inches in diameter and the inner tube 10 inches in length. About 1890 an official gage made by J. Schultzbach, of Washington, D. C., was sent him and put into use. The receiver of this gage was 8 inches in diameter and the overflow was 6 inches in diameter. This gage remained in use until November 2, 1902, when a standard 8-inch Weather Bureau gage was installed.

Exposures.—From November, 1869, to November, 1882, the thermometer was exposed in a homemade shelter whose design is best described in the sketch reproduced in figure 1. This shelter was kept turned so that the sun did not shine on the instrument. From November, 1869, to the spring of 1877 the shelter stood in the dooryard. about 30 feet southeast of the house and about  $5\frac{1}{2}$  feet above the nearly level sod beneath. There were some fruit trees 10 to 20 feet distant from the shelter, and these were kept trimmed to a height of 7 or 8 feet. In the spring of 1877 he moved the shelter to the north side of the house where the ground was open all about, and there the thermometers remained until November 1, 1882.

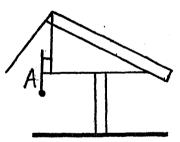


Fig. 1—Sketch of the home-made thermometer shelter used by Mr. Mikesell from November 1869 to November 1882. Thermometer was at A.

A Stevenson screen was built by Mr. Mikesell in November, 1882, and he erected this new shelter at a point about 40 feet southeast of his house, 5½ feet above the sod-covered ground. On March 1, 1902, the station was again moved, this time to the town of Wauseon, distant nearly 1 mile and straight south. The Stevenson shelter was there set up to the north of his new residence. On March 22, 1902, a regular "cotton region" shelter furnished by the Weather Bureau, was set over sod about 30 feet north-northwest of the house and arranged to open to the north with the floor of the shelter 5 feet from the ground. Its present appearance, outfitted with an interior electric light for convenience in reading, is shown by figure 2. This shelter and location have been in use since March 22, 1902.

The exposure of the raingage has always been free and open, away from buildings and trees. Before 1882, whenever the snowfall exceeded 2 inches, the capacity of the gage, Mr. Mikesell employed a ring having the diameter of the rim of the raingage, cut down through a level depth of the snow to secure a sample cylinder, then melted this sample and measured the resulting water in the raingage. After 1882 he had made an extension top to the rain gage and of exactly the right size; this top he would fasten to the top of the gage thus catching and retaining the snow above the funnel. The snow thus caught he would melt and measure as usual. The method of cutting out a cylinder of snow which could later be melted and measured was the one prescribed for cooperative observers at the time it was practiced by Mr. Mikesell. The extension top to his standard raingage funnel was, however, a serious departure from the usual practice; in effect raising the mouth of the snowgage considerably above the level of the raingage. It probably was not as accurate as the sampling method previously employed.

Observing hours,—Until November 1, 1882, Mr. Mikesell's observing hours were 5a (or in winter 6a), 1p and 9p, From November 1, 1882, to December 1, 1883, the hours were 7a, 2p, and 9p by local time; and from the latter date to the present they have been 7ª, 2p, and 9<sup>p</sup> by central standard time (ninetieth meridian time).

The mean temperature for the day was calculated by the formula  $\frac{1}{2}(5^a+1^p+9^p)$  for the observations up to November 1, 1882; for the subsequent observations the calculation was by the formula  $\frac{1}{4}(7^a+2^p+9^p+9^p)$ .

Before November 1, 1882, the highest and lowest temperatures were taken directly from observations of the thermometer, and although many special readings were taken it is probable that the published values are not always the true extreme temperatures. Self-registering thermometers have been in use since November 1, 1882.

Use of the data.—The present publication makes no attempt to formulate any correlation between the weather factors and the advance of vegetation. It has been deemed wisest first to present these priceless records in tabular form, making them available for the use of all students of phenological phenomena.

Mr. Mikesell's data relative to the advance of corn have been employed by J. Warren Smith in an article on the effect of the weather on the yield of corn. Other portions of his data are being used in studies of other crops, studies now under way.2

All the figures here published have been carefully checked. Mr. Mikesell has been found to be very accurate in all his records and observations, and we believe that the data here presented are as accurate as it is possible to make them.

The data here published were all furnished by Mr. Mikesell, but they have been retabulated by the office

force of the Columbus (Ohio) station of the Weather Bureau. Special credit, in this connection, is due Mr. H. B. Lake, who has transcribed most of the figures. It is believed that by publishing with the phenological records, the daily records of rainfall and temperature made at the same place and time by the same observer, the Weather Bureau is furnishing rare and closely related facts for the use of plant physiologists and agricultural meteorologists.

## PHENOLOGICAL TABLES FOR WAUSEON, OHIO.

Reference numbers.—In the following tables the common names of wild plants, flowers, and trees have been used. These names are followed by reference numbers in curves, which refer the student to the corresponding number in the list of species on the following pages. This list of species has been selected from the list published by W. A. Kellerman 3 in his check list, "The Fourth State Catalogue of Ohio Plants," and has subsequently been revised by the United States Bureau of Plant Industry.

Reference numbers and specific names of plants.

Number.

234. Orchard grass. Dactylis glomerata L.

236. Wire grass. Poa compressa L.

237. June grass; Kentucky blue grass; spear grass. Poa pratensis L.

264. Chess; cheat. Bromus secalinus L.

463. Indian turnip. Arisaema triphyllum (L.) Torr.

464. Green dragon. Arisaema dracontium (L.) Schott.

512. Day lily. Hemerocallis fulva L.

520. Yellow lily; Canada lily. Lilium canadense L.

522. Yellow adder's tongue. Erythronium americanum Ker.

523. White adder's tongue. Erythronium albidum Nutt.

531. False Solomon's seal. Vagnera racemosa (L.) Morong. (Smilacina racemosa Desf.)

538. Smooth Solomon's seal. Polygonatum commutatum (R. & S.) Dietr. (P. giganteum Dietr.)

543. Large-flowered wake-robin. Trillium grandiflorum (Mx.) Salisb.

556. Large blue flag. Iris versicolor L. 600. Black walnut. Juglans nigra L.

603. Shell-bark; shag-bark hickory. Hicoria ovata (Mill.) Britt. (Carya alba Nutt.)

.607. Pignut hickory. Hicoria glabra (Mill.) Britt. (Carya porcina Nutt.)

615. American aspen. Populus tremuloides Mx.

617. Cottonwood; Carolina poplar. Populus deltoides Marsh. (P. monilifera Ait.)

618. Black willow. Salix nigra Marsh.

644. Hop horn-beam; ironwood. Ostrya virginiana (Mill.) Willd.

645. Wild hazelnut. Corylus americana Walt.

660. Black oak. Quercus velutina Lam. (Q. coccinea var. tinctoria Gr.)

666. White oak. Quercus alba L.

667. Bur oak; mossy-cup oak. Quercus macrocarpa Mx.

668. Swamp white oak. (Q. bicolor Willd.) Quercus platanoides (Lam.) Sudw.

672. American elm; White elm. Ulmus americana L.

678. Osage orange. Toxylum pomiferum Raf. (Maclura aurantiaca Nutt.)

695. Sheep sorrel; field sorrel. Rumex acetosella L.

714. Smartweed. Persicaria hydropiper (L.) Opiz. (Polygonium hydro-

715. Water smartweed; dotted smartweed. Persicaria punctata (Ell.) Small. (Polygonum punctatum Ell.; P. acre H. B. K.)

729. Lamb's quarters; pigweed. Chenopodium album L.

<sup>&</sup>lt;sup>2</sup> Smith, J. Warren. Effect of weather upon the yield of corn. MONTHLY WEATHER REVIEW, Washington, Feb., 1914, 42:78-92.

Effect of weather upon the yield of potatoes. Ibid, May 1915, 48: 222-236.

See Ohio State University. University Bulletins, Series 4, No. 10, Columbus, Ohio, April, 1899. (Botanical series, No.11.)

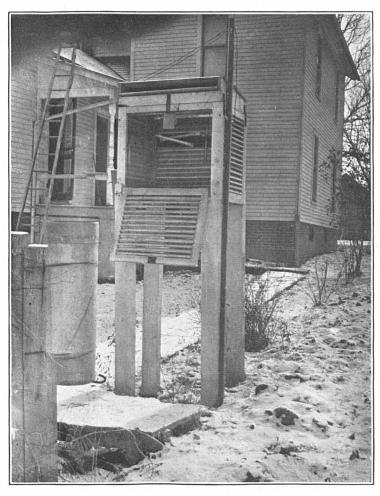


Fig. 2.—Thermometer screen and raingage in place as used by Mr. Mikesell, Wauseon, Ohio, 1902–1912.

- 759. Spring beauty. Claytonia virginica L.
- 762. Purslane. Portulaca oleracea L.
- 763. Corn campion; corn cockle. Agrostemma githago L. (Lychnis githago Lam.)
- 823. Wild columbine. Aquilegia canadensis L.
- 824. European columbine. Aquilegia vulgaris L.
- 826. Garden larkspur. Delphinium ajacis L.
- 829. Dwarf larkspur. Delphinium tricorne Mx.
- 836. Round-lobe liverleaf. Hepatica triloba (L.) Chaix. (H. hepatica (L.) Karst.)
- 842. Yellow crowfoot. Ranunculus delphinifolius Torr. (R. multifidus Ph.; incl. var. terrestris Gr.)
- 867. May apple; wild mandrake. Podophyllum peltatum L.
- 868. Moonseed. Menispermum canadense L.
- 869. Sassafras. Sassafras variifolium (Salisb.) Kuntze. (S. sassafras (L.) -; S. officinale Nees.)
- 876. Bloodroot. Sanguinaria canadensis L.
- 879. Dutchman's breeches. Bicuculla cucullaria (L.) Millsp. (Dicentra cucullaria DC.)
- 881. Wild bleeding-heart. Bicuculla eximia (Ker.) Millsp. (Dicentra eximia DC.)
- 895. White mustard. Sinapis alba L. (Brassica alba L.) 896. Black mustard. Brassica nigra (L.) Koch.
- 907. Horse radish. Radicula armoracia (L.) Robinson. (Armoracia armoracia (L.) Britt.; Armoracia rusticana Gaertn.)
- 913. Purple bitter-cress. Cardamine douglassii (Torr.) Britton.
- 916. Cut-leaf pepper-root; Toothwort. Dentaria laciniata Muhl.
- 920. Shepherd's purse. Bursa bursa-pastoris (L.) Britt. (Capsella bursa-pastoris Moench.)
- 964. Mock orange; garden syringa. Philadelphus coronarius L.
- 972. Witch-hazel. Hamamelis virginiana L.
- 974. Sycamore; button-wood; button-ball. Platanus occidentalis L.
- 1003. Common five-finger. Potentilla canadensis L.
- 1021. Swamp rose. Rosa carolina L.
  1023. Pasture rose. Rosa virginiana Mill. (Rosa humilis lucida (Ehrh.) Best., R. lucida Ehrh.)
- 1041. Red haw; scarlet thorn. Cratægus coccinea L. 1060. Kentucky coffee-tree. Gymnocladus dioica (L.) Koch. (G. canadensis Lam.)
- 1065. Wild lupine. Lupinus perennis L.
- 1066. Lucerne; alfalfa; purple medic; snail-clover. Medicago sativa I.
- 1068. White mellilot; white sweet-clover. Melilotus alba Desv.
- 1069. Yellow mellilot; yellow sweet-clover. Melilotus officinalis (L.) Lam.
- 1071. Low hop-clover. Trifolium procumbens L.
- 1077. Alsike clover; alsatian clover. Trifolium hybridum L.
- 1078. White clover. Trifolium repens L.
- 1099. Hoary tick-trefoil. Meibomia canescens (L.) Kuntze. (Desmodium canescens DC.)
- 1133. Wild cranebill; spotted cranebill. Geranium maculatum Tourn.
- 1143. Upright yellow wood-sorrel. Oxalis stricta L. (O. corniculata var. stricta Sav.)
- 1147. Slender yellow flax. Linum virginianum L.
- Staghorn sumac. Rhus hirta (L.) Sudw. (R. typhina L.)
- 1188. Poison sumac; poison oak; poison ivy. Toxicodendron radicans
- (L.) Kuntze. (Rhus radicans L.; R. toxicodendron L.) 1195. Wahoo; burning-bush. Euonymus atropurpureus Jacq.
- 1196. Climbing bitter-sweet. Celastrus scandens L.
- 1198. Silver maple; white maple; soft maple. Acer saccharinum L. (A. dasycarpum Ehrh.)
- 1200. Sugar maple; rock maple; sugar-tree. Acer saccharum Marsh. (A. saccharinum Wang.)
- 1204. Box elder; ash-leaf maple. Acer negundo L. (Negundo aceroides Mœnch.)
- 1205. Horse-chestnut; buckeye. Esculus glabra Willd.
- 1220. American woodbine; Virginia creeper; ampelopsis. Parthenocissus quinquefolia (L.) Planch. (Ampelopsis quinquefolia Mx.)
- 1260. Early blue violet. Viola palmata L.

- 1261. Prairie, or larkspur violet. Viola pedatifida Don.
- 1262. Hooded blue violet. Viola papilionacea Pursh. (Viola obliqua Hill.) [Other synonyms in error.]
- 1263. Arrow-leaf violet. Viola sagittata Ait.
- 1265. Bird's-foot violet. Viola pedata L.
- 1267. Sweet white violet. Viola blanda Willd.
- 1269. Lance-leaf violet. Viola lanceolata L.
- 1272. Smoothish yellow violet. Viola eriocarpa Schwein. (Viola scabriuscala (T. & G.) Schw. V. pubescens var. scabriuscala T. & G.)
- 1273. Canada violet. Viola canadensis L.
- 1274. Pale, striped or cream-colored violet. Viola striata Ait.
- 1275. Dog violet. Viola laboradorica Schrnk. [Synonym in error.]
- 1276. Long-spur violet. Viola rostrata Ph.
- 1277. Pansy; heart's-ease. Viola tricolor L.
- 1363. Kinnikinnik; silky cornel. Cornus amonum Mill. (C. sericea L.)
- 1393. High-bush huckleberry; black huckleberry. Gaylussacia baccata (Wang.) K. Koch.
- 1398. Low blueberry; blue huckleberry. Vaccinium vacillans Kalm.
- 1408. Moneywort; creeping loosestrife. Lysimachia nummularia L.
- 1416. Persiminon; date-plum. Diospyros virginiana L. 1417. White ash. Fraxinus americana L.
- 1421. Blackash; hoop ash. Fraxinus nigra Marsh. (F. sambucifolia Lam.)
- 1438. Periwinkle. Vinca minor L.
- 1443. Butterfly-weed; pleurisy-root. Asclepias tuberosa L.
- 1446. Swamp milkweed. Asclepias incarnata L.
- 1453. Common milkweed; silkweed. Asclepias syriaca L. (A. cornuti
- 1467. Hedge bind-weed; Rutland beauty; wild morning-glory. Convolvulus sepium L. (incl. var. americanus Sims.)
- 1481. Garden phlox. Phlox paniculata L.
- 1482. Wild sweet-william. Phlox maculata L. (incl. var. candida M.)
- 1485. Downy phlox. Phlox pilosa L.
- 1486. Wild blue phlox. Phlox divaricata L.
- 1487. Ground pink; moss pink. Phlox subulata L.
- 1507. Corn gromwell. Lithospermum arvense L.
- 1511. Hoary puccoon. Lithospermum canescens (Mx.) Lehm.
- 1518. Nettle-leaf verbain; white vervain. Verbena urticifolia L.
- 1519. Blue vervain; wild hyssop. Verbena hastata L.
- 1532. Hairy skullcap. Scutellaria pilosa Mx.
- 1541. Catnip. Nepeta cataria L.
- 1543. Common self-heal. Prunella vulgaris L.
- 1547. Motherwort. Leonurus cardiaca L.
- 1605. Bittersweet; blue bindweed; fellonwort. Solanum dulcamara L.
- 1609. Purple stramonium. Datura stramonium L.
- 1610. Common mullein. Verbascum thapsus L.
- 1640. Culver's root. Leptandra virginica (L.) Nutt. (Veronica virginica L.)
- 1666. Trumpet creeper. Bignonia radicans L. (Tecoma radicans (L.) DC.)
- 1675. Common or broad-leaf plantain. Plantago major L.
- 1688. Button bush; globe flower. Cephalanthus occidentalis L. 1703. Common elder; sweet elder. Sambucus canadensis L.
- 1706. Snow ball. Viburnum opulus L.
- 1712. Black haw; stag-bush. Viburnum prunifolium L.
- 1723. Trumpet honeysuckle. Lonicera semper virens Ait.
- 1724. Chinese honeysuckle. Lonicera japonica Thumb.
- 1728. Tartarian bush-honeysuckle. Lonicera tartarica L. 1729. Bush honeysuckle. Diervilla lonicera Mill. (Diervilla diervilla
- (L.) MacM.; D. trifida Moench.) 1739. Wild teasel. Dipsacus sylvestris Mill.
- 1762. Dandelion; blowball. Leontodon taraxacum L. (Taraxacum taraxacum (L.) Karst.; T. officinale Weber.)
- 1766. Prickly lettuce. Lactuca virosa L. (Lactuca scariola L.)
- 1767. Wild lettuce; tall lettuce. Lactuca canadensis L.
- 1788. Great ragweed; horse ragweed; bitterweed. Ambrosia trifida L.
- 1790. Ragweed; hogweed; bitter-weed; Roman wormwood. Ambrosia elatior L. (Ambrosia artemesiæfolia L.)

- 1794. American cocklebur. Xanthium pennsylvanicum Wallr. [Xanthium canadense Mill. (incl. var. echinatum Gr.)]
- 1797. Tall ironweed. Vernonia altissima Nutt. (Vernonia gigantea (Walt.) Britt.)
- 1806. Boneset; thoroughwort; Indian sage. Eupatorium perfoliatum L.
- 1898. Philadelphia fleabane. Erigeron philadelphicus L.
- 1899. Sweet scabious; white-top. Erigeron annuus (L.) Pers.
- 1900. Daisy fleabane. Erigeron ramosus (Walt.) B. S. P. (E. strigosus Muhl.)
- 1931. Black-eyed Susan. Rudbeckia hirta L.
- 1937. Common sunflower. Helianthus annuus L.
- 1947. Oblong-leaf sunflower. Helianthus doronicoides Lam.
- 1961. Tall tickseed. Coreopsis tripteris L.
- 1964. Swamp beggar-ticks. Bidens connata Muhl.
- 1967. Beggar-ticks; stick-tight. Bidens frondosa L.

- 1968. Spanish needles. Bidens bipinnata L.
- 1979. Yarrow; milfoil. Achillea millefolium L.
- 1980. May-weed; dog fennel. Anthemis cotula DC.
- 1990. Tansy. Tanacetum vulgare L.
- 1999. Fire-weed; pilewort. Erechtites hieracifolia (L.) Raf.
- 2002. Common spear thistle. Cirsium lanceolatum (L.) Hill. (Carduus lanceolatus L.; Cnicus lanceolatus Hoffm.)
- 2009. Burdock. Arctium lappa L.
- 2012. Common thistle. Cirsium lanceolatum (L.) Hill. (Carduus lanceolatus L.)
- 2017. Swamp thistle. Cirsium muticum Michx. (Carduus muticus (Mx.) Pers.; Cnicus muticus Ph.)
- 2018. Canada thistle. Cirsium arvense (L.) Scop. (Carduus arvensis (L.) Robs.; Cnicus arvensis Hoffm.)

Table 1.—Phenological observations at Wauseon, Ohio, on 16 different kinds of fruits, 1883 to 1912, inclusive.

APPLES (King).

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Year.	Buds started,	First fully formed leaf.	Days from 2 to 4	In full leaf,	First bloom.	In full bloom.	Days from 6 to 8	Fruit ripe.	Com- plete change in foliage.	Days from 9 to 11	Divested of leaves.	Quantity of fruit.	Quality of fruit.
	1	2	3	4	5	6	7	8	9	10	11	12	18
1883	Apr. 29 Apr. 28 May 3 Apr. 15 Apr. 21 Apr. 28 Apr. 21 Apr. 22	May 10 May 5 May 16 Apr. 23 Apr. 28 May 8 May 3 Apr. 30	7 6 9 9 12 10 6 8	May 17 May 11 May 25 May 2 May 10 May 18 May 9 May 8	May 17 May 13 May 18 Apr. 25 May 10 May 11 May 7 May 5	May 20 May 18 May 22 Apr. 28 May 14 May 15 May 11 May 9	134 135 132 143 139 140 147	Oct. 1 Sept. 30 Oct. 1 Sept. 18 Sept. 30 Oct. 2 Oct. 5 Sept. 20	Oct. 15 Oct. 20 Oct. 9 Oct. 18 Oct. 15 Oct. 20 Oct. 8 Oct. 5	17 19 29 16 21 10 16 40	Nov. 1 Nov. 8 Nov. 7 Nov. 3 Nov. 5 Oct. 30 Oct. 24 Nov. 14	Full Seant Full Scant Scant	Good. Fair. Good. Good. Fair.
1892 1893 1894 1894 1895 1896 1897 1898 1898	Apr. 22 Apr. 25 Apr. 14 Apr. 17 Apr. 23 Apr. 17 Apr. 23 Apr. 15 Apr. 25	Apr. 28 May 5 May 7 Apr. 27 May 2 Apr. 24 Apr. 30 Apr. 29 May 3	12 13 11 9 8 7 12 13	May 10 May 18 May 18 May 6 May 10 May 1 May 12 May 12 May 12	May 6 May 14 May 11 May 5 May 2 Apr. 27 May 9 May 4 May 1 May 9	May 10 May 18 May 14 May 8 May 5 Apr. 30 May 13 May 8 May 5	144 136 140 133 148 153	Oct. 1 Oct. 1 Sept. 18 Sept. 30 Sept. 30 None. Sept. 30 Sept. 20	Oct. 23 Oct. 30 Oct. 16 Oct. 15 Oct. 22 Oct. 22 Oct. 2	16 9 32 21 14 14 23	Nov. 8 Nov. 8 Nov. 17 Nov. 5 Nov. 5 Nov. 5 Oct. 25	Full. Scant. Scant. Scant. Scant. Scant. None.	Good. Fair.
1902 1903 1903 1904 1905 1906 1907 1908 1908	Apr. 22 Apr. 19 May 1 Apr. 21 Apr. 18	May 3 May 6 May 2 May 13 May 6 May 13	12 6 12 9 12 7 7	May 15 May 12 May 14 May 22 May 18 May 20 May 5	May 9 May 1 Apr. 29 May 14 May 2 May 4 May 11 May 8 May 14 Apr. 17	May 18 May 6 May 9 May 15	136 137 145 123 129 128 146	Oct. 1 Sept. 20 Sept. 30 Sept. 15 Sept. 18 Sept. 18 Sept. 12 Sept. 15			Nov. 4 Nov. 10 Nov. 22 Nov. 13	Not few Scant Fair Scant Scant Scant Not full	Good. Fair. Good. Good. Good. Fair. Good.
1911 1912 Average Earliest Latest	May 1	May 14 May 7	12 11 9 6 13	May 26 May 18 May 13 May 1	May 7 May 8 May 7	May 12 May 11 May 11	133 137 138 123 153	Sept. 20 Sept. 25 Sept. 26 Sept. 15 Oct. 5	Oct. 25 Nov. 5 Oct. 20 Oct. 2 Nov. 8	19 5 18 2 40	Nov. 13 Nov. 10 Nov. 7 Oct. 24 Nov. 22	FullFull	Good. Good.
			<u> </u>		PEA	R (Bart	lett).						
1883	Apr. 29 Apr. 28 May 13 Apr. 22 Apr. 29 Apr. 30 Apr. 23 Apr. 23	May 7 May 8 May 19 Apr. 28 May 9 May 10 May 1 May 1 May 2	6 8 4 8 6 8 9	May 13 May 16 May 23 May 6 May 15 May 18 May 10 May 12	May 9 May 8 May 17 Apr. 25 May 7 May 10 May 4 May 2	May 12 May 12 May 21 Apr. 28 May 11 May 13 May 7 May 6	131 121 110 96 104 115 118	Sept. 23 Sept. 10 Sept. 6 Aug. 22 Aug. 23 Sept. 5 Sept. 2 Aug. 21	Sept. 18 Oct. 9 Sept. 23 Oct. 8 Sept. 25 Oct. 18 Sept. 23 Oct. 8	13 16 17 4 10 6 9	Oct. 1 Oct. 25 Oct. 10 Oct. 12 Oct. 5 Oct. 24 Oct. 2 Oct. 24	Scant Full Scant Full Scant Full Scant	Fair. Good. Fair. Good. Fair.
1801 1802 1803 1804 1806 1806 1807 1808 1809	Apr. 20 Apr. 30 Apr. 17 Apr. 24 Apr. 19 Apr. 25 Apr. 16 Apr. 26	Apr. 28 May 10 May 14 Apr. 28 May 3 Apr. 24 May 4 Apr. 27 May 1	12 10 7 7 7 7 8 11	May 10 May 20 May 21 May 5 May 10 May 1 May 12 May 8 May 10	Apr. 28 Apr. 29	May 4 May 15 May 15 Apr. 30 May 6 Apr. 29 May 12 May 2 May 3	125 128 107 120 118 118 110 136	Sept. 6 Sept. 20 Aug. 30 Aug. 28 Sept. 1 Aug. 25 Aug. 30 Sept. 15 None.	Oct. 6 Oct. 12 Oct. 16 Oct. 5 Oct. 22 Sept. 26 Oct. 8	22 10 14 11 8 8 12	Oct. 28 Oct. 22 Oct. 30 Oct. 16 Oct. 30 Oct. 4 Oct. 20	Full Scant Full Full Full Scant	Good. Poor. Good. Good. Good. Good. Fair.
1901 1902 1903 1904 1904 1905 1906 1907 1907 1909 1910	Apr. 22 Apr. 19 May 4 Apr. 21 May 3 Apr. 10		10 6 12 8 11 10 14	May 11 May 13 May 22 May 17 May 24	May 7  May 3 Apr. 30 Apr. 29 May 7 Apr. 30 Apr. 30 Apr. 30 Apr. 30 May 11 Apr. 27 May 9 Apr. 12	May 13 May 5 May 3 May 16 May 1 May 1	130 133 129 122 111 126 155	Sept. 20 Sept. 15 Sept. 10 Sept. 15 Aug. 20 Sept. 15 Sept. 18	Sept. 30	20 29 9 10 26	Oct. 26 Nov. 3 Oct. 25	Full Scant Fair Scant Scant Scant Fair Fair Fair Fair Fair Fair Fair Fair	Good. Good. Good. Good. Good. Good. Good.
1911. 1912. Average Earliest Latest		May 12	10 8 9 4 14	May 22 May 16 May 14 May 1 May 24	May 7 May 6 May 3 Apr. 12 May 17	May 11 May 10 May 7 Apr. 16 May 21	130 123 122 96 155	Sept. 18 Sept. 10 Sept. 6 Aug. 20 Sept. 23	Oct. 18 Oct. 28 Oct. 8 Sept. 18 Oct. 28	11 8 13 4 29	Oct. 29 Nov. 5 Oct. 21 Oct. 1 Nov. 15	Full	Good. Good.

Table 1.—Phenological observations at Wauseon, Ohio, on 16 different kinds of fruits, 1883 to 1912, inclusive—Continued.

PEACH (late Crawford).

Year.	Buds started.	First fully formed leaf.	Days from 2 to 4	In full leaf.	First bloom.	In full bloom.	Days from 6 to 8	Fruit ripe.	Com- plete change in foliage.	Days from 9 to 11	Divested of leaves.		Quality of fruit.
	1	2	3	4	5	6	7	8	9	10	11	12	18
1883	Apr. 30 May 2 Apr. 16 Apr. 16	May 15 May 11 May 19 Apr. 30 May 1 May 15 May 1 Apr. 27	7 9 7 9 15 6 11 13	May 22 May 20 May 26 May 9 May 16 May 21 May 12 May 10	May 13 May 4 None. Apr. 23 May 3 May 6 Apr. 23 Apr. 16	May 17 May 8 Apr. 26 May 7 May 9 Apr. 26 Apr. 20	136 147 136 139 141	Sept. 30 None. None. Sept. 20 Sept. 20 Sept. 25 Sept. 14 None.	Sept. 22 Oct. 24 Oct. 9 Oct. 23 Oct. 10 Oct. 28 Sept. 24 Oct. 10	18 32 22 13 20 9 34 29	Oct. 10 Nov. 25 Oct. 31 Nov. 5 Oct. 30 Nov. 6 Oct. 28 Nov. 8	Scant. Full. Scant. Full. None.	Poor. Good. Good. Good.
1891 1892 1898 1894 1896 1896 1896 1897 1898	Apr. 14 Apr. 6 Apr. 20 Apr. 18 Apr. 24 Apr. 17	Apr. 30 May 6 May 6 Apr. 28 May 3 Apr. 24 May 5 May 1 May 1	8 14 12 12 8 8 7 12 9	May 8 May 20 May 18 May 10 May 11 May 2 May 12 May 13 May 10	Apr. 23 May 7 May 10 Apr. 17 May 2 Apr. 23 None. Apr. 27 Apr. 28 Apr. 28	Apr. 27 May 11 May 13 Apr. 20 May 6 Apr. 27 May 1 May 2	151 140 153 139 134 127 141	Sept. 25 None. Sept. 30 Sept. 20 Sept. 22 Sept. 8 None. Sept. 5 Sept. 15		36. 8 5 17 11 14 11		Full. None. Scant. Full. Full Full None.	Good. Fair. Good. Good. Good.
901	Apr. 22 Apr. 23 Apr. 20 Apr. 24	May 15 May 5 May 4 May 16 May 16 May 5 Apr. 5	10 9 14 8 9 11 26	May 25 May 14 May 18 May 24 May 25 May 16 May 1	Apr. 29 Apr. 29 May 7 Apr. 28 Apr. 29 Apr. 30 Apr. 30 Apr. 30 Apr. 4		123 131 131 124	Sept. 12 Sept. 10 Sept. 15 Sept. 5 None. None. Sept. 8	Oct. 5 Oct. 25 Nov. 3 Oct. 20 Oct. 18	30 14 5 16 18	Nov. 4 Nov. 8 Nov. 8 Nov. 5 Nov. 5	Not few. Scant. Full. Scant. None None. Not full	Good, Good. Good. Good.
911. 912. Average Barliest _atest.	Apr. 23 Apr. 21	May 15 May 4 May 5 Apr. 5 May 19	12 12 10 6 26	May 27 May 16 May 15 May 1 May 27	May 1 May 6 Apr. 28 Apr. 4 May 13	May 4 May 11 May 3 Apr. 9 May 17	124 122 136 122 153	Sept. 5 Sept. 10 Sept. 16 Sept. 5 Sept. 30	Oct. 5 Nov. 9 Oct. 18 Sept. 22 Nov. 9	38 1 18 5 38		Full. Scant	Good.

## PLUM.

1883 1884 1885 1886 1887 1888 1889 1890	May 6 Apr. 20 Apr. 30 May 8 Apr. 25	May 16 May 10 May 18 Apr. 30 May 5 May 17 May 9 May 5	9 10 9 10 11 5 6 13	May 25 May 20 May 27 May 10 May 16 May 22 May 15 May 18	May 13 May 8 May 14 Apr. 23 Apr. 30 May 6 May 3 Apr. 23	May 16 May 11 May 16 Apr. 26 May 3 May 10 May 6 Apr. 27	120 122 121 116 134		Sept. 8 Oct. 18 Oct. 9 Oct. 5 Oct. 16 Oct. 5 Sept. 10 Oct. 8	17 37 12 10 4 11 15 17	Sept. 25 Nov. 24 Oct. 21 Oct. 15 Oct. 20 Oct. 16 Sept. 25 Oct. 25	Scant. Scant. Scant. Scant. Full.	Fair. Fair. Good. Fair. Good.
1891 1892 1893 1894 1895 1896 1897 1898 1899	Apr. 30 Apr. 17 Apr. 25 Apr. 24 Apr. 17 Apr. 22 Apr. 17 Apr. 24	May 2 May 12 May 10 May 3 May 3 Apr. 24 May 1 Apr. 26 May 1	12 8 10 10 9 8 7 17 9	May 14 May 20 May 20 May 13 May 12 May 2 May 8 May 13 May 10	Apr. 28 May 4 May 8 Apr. 24 Apr. 30 Apr. 20 May 3 Apr. 26 Apr. 27 Apr. 29	May 3 May 7 May 11 Apr. 27 May 4 Apr. 25 May 7 Apr. 30 Apr. 30 May 3		None. Aug. 1 Aug. 28 Aug. 24 None. None. None.	Oct. 2 Sept. 30	8 13 13 20 11 10		Full None None Scant Scant Bcant None None None	Fair.
1901 1902 1903					Apr. 30 Apr. 25	May 5 May 1							
1904	Apr. 22 Apr. 24 May 4 Apr. 22 Apr. 28	May 12 May 2 May 5 May 13 May 15 May 8 Apr. 27	9 8 11 8 10 10	May 21 May 10 May 16 May 21 May 25 May 18 May 8	May 5 Apr. 25 Apr. 28 Apr. 29 Apr. 24 May 6 Apr. 6	May 9 Apr. 28 May 1 May 3 Apr. 28 May 10 Apr. 11	108	None. Aug. 28	Oct. 3 Oct. 19 Nov. 5 Oct. 20 Oct. 20	27 11 15 16 21	Oct. 30 Oct. 30 Nov. 20 Nov. 5 Nov. 10	Full	Good. Fair. Good.
1911 1912	May 4	May 13 May 8	9 12	May 22 May 20	Apr. 30 May 7	May 4 May 10	120		Oct. 20 Oct. 20	23 11	Nov. 12 Oct. 31	Scant None	Good.
Average Earliest Latest	Apr. 14	May 6 Apr. 24 May 18	10 5 17	May 16 May 2 May 27	Apr. 30 Apr. 6 May 14	May 4 Apr. 11 May 16	115 96 134	Aug. 1	Oct. 10 Sept. 8 Nov. 5	15 4 37		**************	

Table 1.—Phenological observations at Wauseon, Ohio, on 16 different kinds of fruits, 1883 to 1912, inclusive—Continued.

CHERRY (early Richmond).

				,	A Committee			•					
Year.	Buds started.	First fully formed leaf.	Days from 2 to 4	In full leaf.	First bloom.	In full bloom,	Days from 6 to 8	Fruit ripe.	Com- plete change in foliage.	Days from 9 to 11	Divested of leaves.	Quantity of fruit.	Quality of fruit.
	1	2	8	4	5	6	7	8	9	10	11	12	13
1883 1884 1885 1895 1896 1887 1888 1889 1890	May 2 May 1 Apr. 30 Apr. 18 Apr. 27 Apr. 30 Apr. 20 Apr. 23	May 16 May 8 May 15 Apr. 28 Apr. 4 May 9 May 3 May 3	6 7 10 8 8 9 6 5	May 22 May 15 May 25 May 6 May 12 May 18 May 9 May 8	May 9 May 6 May 16 Apr. 23 May 3 May 5 Apr. 26 Apr. 29	May 14 May 10 May 18 Apr. 27 May 7 May 8 Apr. 29 May 2	57 49 44 43 38 40 51 47	July 10 June 28 July 1 June 9 June 14 June 17 June 19 June 18	Sept. 12 Oct. 24 Oct. 9 Nov. 1 Oct. 20 Oct. 18 Oct. 8 Oct. 24	33 27 22 9 8 15 12 10	Oct. 15 Nov. 20 Oct. 31 Nov. 10 Oct. 28 Nov. 2 Oct. 20 Nov. 3	Full. Seant. Full. Full. Full	Good. Good. Good. Good. Good.
1892 1893 1894 1895 1896 1897 1898 1899	Apr. 19 Apr. 30 Apr. 19 Apr. 24 Apr. 26 Apr. 25 Apr. 18 Apr. 25	Apr. 30 May 9 May 8 May 2 May 3 Apr. 22 May 5 Apr. 27 May 1	8 9 10 9 7 7 15 7	May 8 May 18 May 11 May 12 Apr. 29 May 12 May 12 May 8	Apr. 28 May 4 May 7 Apr. 26 May 1 Apr. 21 May 5 Apr. 28 Apr. 27 May 1	May 2 May 8 May 11 Apr. 30 May 5 Apr. 25 May 10 May 2 Apr. 30	49 48 42 47 46 39 43 48	June 20 June 25 June 22 June 16 June 20 June 3 June 22 June 19 June 16	Oct. 6 Oct. 30 Oct. 27 Oct. 15 Oct. 22 Oct. 12 Oct. 22	25 8 12 21 11 12 19	Oct. 31 Nov. 8 Nov. 8 Nov. 5 Nov. 2 Oct. 24 Nov. 10	Full Scant Full Full Full Full Full Full	Good. Fair. Good. Good. Good. Good. Good.
1901 1902 1903 1904 1905 1906 1907 1907 1908	Apr. 22 Apr. 25 May 1 Apr. 21 May 6	May 14 May 6 May 4 May 12 May 16 May 15	9 6 10 10 7 8	May 23 May 12 May 14 May 22 May 23 May 23	Apr. 30  Apr. 29  May 7  Apr. 25  Apr. 29  May 5  May 1  May 10	May 12 Apr. 29 May 3 May 9	47 46 40 42	June 28 June 14 June 12 None, None, June 26	,	13 11 13 16		Full. Full Fair. None. None. Scant.	Good. Good. Good.
1911 1912 Average Earliest Latest		May 16	9 12	May 25 May 15 May 14 Apr. 29 May 25	Apr. 10 Apr. 30 May 2 May 1 Apr. 10 May 16	May 5 May 5 May 4 Apr. 14 May 18	72 48 41 47 38 72	June 25 June 22 June 15 June 20 June 3 July 10	Oct. 12 Oct. 30 Oct. 28 Oct. 19 Sept. 12 Nov. 2	18 13 8 15 8 33	Oct. 30 Nov. 12 Nov. 5 Nov. 3 Oct. 15 Nov. 20	Scant Full. Not full.	Good. Good. Good.
					REI	CURR	ANT.						
1883 1884 1885 1885 1886 1887 1887 1888 1889	Apr. 25 Apr. 18 Apr. 23 Apr. 16 Apr. 12 Apr. 20 Apr. 15 Apr. 13	May 6 Apr. 29 May 3 Apr. 22 May 1 May 5 Apr. 27 Apr. 22	7 9 8 4 9 9 4 8	May 13 May 8 May 11 Apr. 26 May 10 May 14 May 1 Apr. 30	May 16 May 8 May 12 Apr. 24 May 3 May 5 Apr. 27 May 4	May 20 May 11 May 16 Apr. 29 May 7 May 10 Apr. 30 May 8	50 56 54 55 63 54 62 46	July 8 July 6 July 9 June 23 July 9 July 3 July 1 July 1 June 23	Aug. 30 Sept. 21 Sept. 23 Nov. 8 Oct. 25 Oct. 10 Sept. 20 Oct. 12	11 9 17 10 16 22 10	Sept. 10 Sept. 30 Oct. 11 Nov. 18 Nov. 10 Nov. 1 Sept. 30 Oct. 24	Full. Full Scant. Full. Full.	Good. Good. Good. Good. Good.
1893 1894 1894 1895 1896 1897 1899	Apr. 20 Apr. 5 Apr. 11 Mar. 22 Apr. 11 Apr. 14 Apr. 6 Apr. 16 Apr. 20	Apr. 24 Apr. 27 Apr. 16 Apr. 18 Apr. 20 Apr. 19 Apr. 24 Apr. 24 Apr. 26	7 7 24 10 10 6 6 9 6	May 1 May 4 May 10 Apr. 28 Apr. 30 Apr. 25 Apr. 30 May 3 May 2	Apr. 29 May 3 May 6 Apr. 26 May 9 Apr. 27 Apr. 30 Apr. 24 Apr. 28	May 3 May 7 May 10 Apr. 30 May 13 May 1 May 4 Apr. 29 May 3	55 55 52 59 48 55 59 54 48	June 27 July 1 July 1 June 28 June 30 June 25 July 2 June 22 June 20	Oct. 13 Oct. 18 Oct. 17 Oct. 15 Oct. 5 Oct. 22 Sept. 30	18 12 19 17 13 10 15	Oct. 31 Oct. 30 Nov. 5 Nov. 1 Oct. 18 Nov. 1 Oct. 15	Full Full Scant Seant Full Full	Cand
1901 1902 1903					May 3	••••••			•	•••••			
1907 1908 1908 1909 1910	Apr. 3 Apr. 13 Mar. 26 Apr. 8 Apr. 19 Apr. 4	Apr. 16 Apr. 27 Apr. 10 May 1 May 5 Apr. 15	20 10 20 4 13 11	May 6 May 7 Apr. 30 May 5 May 18 Apr. 26	Apr. 28 Apr. 30 May 3 Apr. 24 May 10 Apr. 14	May 3 May 6 May 8 Apr. 29 May 15 Apr. 19	59 51 68 55 53 72	July 1 June 26 July 15 June 23 July 7 June 30	Sept. 20 Sept. 27 Oct. 20 Sept. 20	28 15 10 20	Oct. 18 Oct. 12 Oct. 30 Oct. 10	FullFull. FullFull FullFull	Good. Good. Good. Good. Good.
Average Karliest Latest	Apr. 25 Apr. 13 Mar. 22 Apr. 25	May 4 Apr. 25 Apr. 10 May 6	4 9 4 24	May 8 May 4 Apr. 25 May 18	May 4 May 1 Apr. 14 May 16	May 6 Apr. 19 May 20	52 55 46 72	June 29 June 30 June 20 July 15	Sept. 20 Oct. 5 Aug. 30 Nov. 8	10 15 9 28	Sept. 30 Oct. 20 Sept. 10 Nov. 18	Not full	Fair.

## SUPPLEMENT NO. 2.

Table 1.—Phenological observations at Wauseon, Ohio, on 16 different kinds of fruits, 1883 to 1912, inclusive—Continued.

GARDEN GOOSEBERRY.

Year.	Buds started.	First fully formed leaf.	Days from 2 to 4	In full leaf.	First bloom.	In full bloom.	Days from 6 to 8	Fruit ripe.	Com- plete change in foliage.	Days from 9 to 11	Divested of leaves.	Quantity of fruit.	Quality of fruit.
	1	2	3	4	5	6	7	8	9	10	11	12	18
883	Apr. 21 Apr. 16 Apr. 7 Apr. 5	May 6 Apr. 25 May 2 Apr. 21 Apr. 25 Apr. 23 Apr. 24 Apr. 13	9 10 9 7 10 11 6 13	May 15 May 5 May 11 Apr. 28 May 5 May 11 Apr. 30 Apr. 26	May 15 May 9 May 15 Apr. 24 May 4 May 10 Apr. 29 May 8	May 22 May 15 May 20 Apr. 30 May 9 May 14 May 3 May 13	64 61 45 69 56 57 74 63	July 25 July 15 July 14 July 8 July 4 July 10 July 16 July 15	Sept. 2 Oct. 9 Oct. 9 Nov. 2 Oct. 28 Oct. 12 Sept. 25 Oct. 10	10 21 32 14 13 24 15	Sept. 12 Oct. 30 Nov. 10 Nov. 16 Nov. 10 Nov. 5 Oct. 10 Oct. 24	Full	Good. Good. Good. Fair. Good.
991 992 993 994 994 995 996 997 999	Apr. 2 Apr. 6 Mar. 15 Apr. 8 Apr. 12 Apr. 3	Apr. 20 Apr. 22 Apr. 16 Apr. 15 Apr. 20 Apr. 17 Apr. 17 Apr. 18 Apr. 23	8 11 10 11 9 6 11 8 6	Apr. 28 May 3 Apr. 26 Apr. 26 Apr. 29 Apr. 23 Apr. 28 Apr. 26 Apr. 29	Apr. 27 May 1 May 5 Apr. 24 May 10 Apr. 26 May 3 Apr. 20 Apr. 28 May 3	May 2 May 6 May 9 Apr. 30 May 14 Apr. 30 May 6 Apr. 24 May 4	59 55 62 71 46 61 80 77 67	June 30 June 30 July 10 July 10 June 29 June 30 July 25 July 10 July 10	Oct. 23 Oct. 18 Oct. 17 Oct. 5 Oct. 8 Oct. 2 Oct. 20			Scant	Good. Good. Fair. Fair. Good. Good. Good.
901 902 903													
004 005 006 007 008 009 010	Apr. 1 Apr. 6 Mar. 26 Apr. 4 Apr. 6 Mar. 28	Apr. 9 Apr. 18 Mar 29 Apr. 28 Apr. 18 Apr. 5	26 10 31 5 13 8	May 5 Apr. 28 Apr. 29 May 3 May 1 Apr. 13	Apr. 29 Apr. 29 May 3 Apr. 23 May 6 Apr. 14	May 5 May 5 May 8 Apr. 28 May 10 Apr. 19	62 66 78 63 66 83	July 6 July 10 July 25 June 30 July 15 July 11	Sept. 25 Sept. 27 Oct. 20 Sept. 25	10 18 10 15	Oct. 5 Oct. 15 Oct. 30 Oct. 10	Full. Full Full Full Full Full	Good. Good. Good. Good. Good. Good.
111 112 verage arliest	Apr. 13	Apr. 24 Apr. 19 Mar. 29 May 6	10 11 5 31	May 4 Apr. 30 Apr. 13 May 15	May 2	May 6 May 6 Apr. 19 May 22	72 65 46 83	July 17 July 10 June 29 July 25	Oct. 8 Oct. 9 Sept. 2 Nov. 2	12 17 10 32	Oct. 20 Oct. 26 Sept. 12 Nov. 16	Full	Good.

1883	Apr. 23 Apr. 15 Apr. 12 Apr. 12 Apr. 18 Apr. 9 Apr. 10 Apr. 10 Apr. 10 Apr. 12 Apr. 18 Apr. 19	Apr. 28 Apr. 30 Apr. 30 Apr. 30 Apr. 27 Apr. 22 Apr. 22 Apr. 30 Apr. 30 Apr. 30 Apr. 24 Apr. 25 Apr. 16 Apr. 16 Apr. 16	8 6 6 5 7 7 7 6 6 122 122 122 120 8 8 12 12 8 8	May 6 May 6 Apr. 25 May 7 May 7 Apr. 28 May 12 May 12 May 12 May 12 May 3 Apr. 26 Apr. 28 Apr. 28	June 2 June 5 May 23 May 24 June 3 May 28 June 3 May 29 May 29 May 24 May 24 May 18 June 4 May 31 May 31 May 22 May 23	June 8 May 27 May 28 June 11 May 31 June 6 June 3 June 6 June 3	32 32 24 34 27 34 23 26 27 30 36 31 33 28 26 29	July 8 July 10 June 20 July 1 July 8 July 1 July 4 June 29 June 29 July 3 July 3 July 5 June 28 June 28 June 29 June 29 June 29 June 24	Oct. 24 Oct. 26 Nov. 1 Oct. 8 Oct. 24 Oct. 30 Oct. 30 Oct. 27 Oct. 15 Oct. 12 Oct. 22 Oct. 30		Nov. 12	Full Full Full Full Full Full Full Full	Good. Good. Good. Good. Fair. Fair. Good. Good. Good.
1901 1902 1903 1904 1905 1906 1907 1908 1909 1910 1911 1912 Average Earliest Latest	Apr. 18 Apr. 21 May 4 Apr. 28 Apr. 28 Mar. 30  Apr. 22 Apr. 13 Mar. 22	May 8 May 2 May 3 May 15 May 1 May 8 Apr. 10 Apr. 30 May 1			June 10 May 26	June 14 June 1 June 2 June 22 May 29 June 7 June 11 May 28 June 1 June 4 May 23	23 34 29 28 31 38 23 36 39 29 23 39	July 7 July 5 July 3 July 20 June 29 July 15 July 4 July 3 July 10 July 3 June 20 July 20		5 11 13 16 16 16 16	Nov. 4 Oet. 30 Nov. 2 Nov. 3 Nov. 5 Nov. 5 Nov. 6 Oct. 18	Full Full Full Full Full Full Full Full	Good. Good. Good. Good. Good. Good. Good.

Table 1.—Phenological observations at Wauseon, Ohio, on 16 different kinds of fruits, 1888 to 1912, inclusive—Continued.

## BLACK RASPBERRY.

Year.	Buds started.	First fully formed leaf.	Days from 2 to 4	In full, leaf,	First bloom.	In full bloom.	Days from 6 to 8	Fruit ripe.	Com- plete change in foliage.	Days from 9 to 11	Divested of leaves.	Quantity of fruit.	Quality of fruit.
	1	2	3	4	5	6	7	8	9	10	11	12	13
1883 1884 1885 1886 1886 1887 1889 1889	Apr. 23 Apr. 16 Apr. 12 Apr. 18 Apr. 12 Apr. 11	May 1 Apr. 22 May 4 Apr. 21 May 1 Apr. 30 Apr. 25 Apr. 24	12 13 10 6 9 9 12 5	May 13 May 5 May 14 Apr. 27 May 10 May 9 May 7 Apr. 29	June 4 June 1 June 5 May 22 May 26 June 7 May 28 June 3	June 8 June 6 June 10 May 27 May 30 June 10 May 31 June 6	35 30 32 31 35 30 38 24	July 13 July 6 July 12 June 27 July 4 July 10 July 8 June 30	Sept. 12 Oct. 24 Oct. 9 Oct. 26 Oct. 26 Nov. 1 Oct. 8 Oct. 24	18 15 32 19 10 9 17	Sept. 30 Nov. 8 Nov. 10 Nov. 14 Nov. 5 Nov. 10 Oct. 25 Nov. 5	Full Full Full Full Full Full	Good. Good. Good. Good. Good.
1892 1893 1894 1895 1895 1896 1897 1898 1898	Apr. 14 Apr. 8 Apr. 11 Mar. 22 Apr. 20 Apr. 15 Apr. 7 Apr. 16 Apr. 22	Apr. 22 Apr. 30 Apr. 18 Apr. 25 Apr. 28 Apr. 20 Apr. 18 Apr. 24 Apr. 28	6 14 28 8 7 10 10 10	Apr. 28 May 14 May 16 May 3 May 5 Apr. 30 Apr. 28 May 4 May 8	May 31 June 5 June 3 May 18 May 28 May 19 June 3 June 1 May 21 May 23	June 3 June 9 June 7 May 22 June 2 May 22 June 7 June 5 May 28	29 31 28 39 30 30 34 29	July 2 July 10 July 5 June 30 July 2 June 21 July 11 July 4 June 25	Oct. 23 Oct. 30 Oct. 27 Oct. 10 Oct. 22 Oct. 19 Oct. 2	23 8 12 10 8 17 16	Nov. 15 Nov. 8 Nov. 8 Oct. 20 Oct. 30 Nov. 5 Oct. 18	Full. Scant. Scant. Scant. Scant. Full. Full.	Good.
1901 1902 1903					Į.				i				
1901 1902 1903 1904 1904 1905 1906 1907 1908 1909	Apr. 19 Apr. 23 May 4 Apr. 12 Apr. 28 Apr. 4	May 3 May 6 May 16 May 2 May 8 Apr. 15	9 10 6 18 10	May 12 May 16 May 22 May 20 May 18 Apr. 27	May 28 May 31 June 16 May 27 June 4 June 10	June 1 June 4 June 20 June 1 June 8 June 14	32 31 28 31 32 22		Oct. 30 Oct. 20 Oct. 18 Oct. 15	10 12 15	Nov. 4 Oct. 30 Oct. 30 Oct. 30	Full. Full. Full. Full. Scant. Not full	Good. Good. Good. Good. Good. Good.
1912	Apr 99		······ <del>'</del>		May 27	May 31	39	July 9	Oct. 11	9	Oct. 20	Full	
Average. Earliest. Latest.	Apr. 15 Mar. 22 May 4	Apr. 27 Apr. 15 May 8	11 5 28	May 8 Apr. 27 May 22	May 31 May 18 June 16	June 4 May 22 June 20	30 22 39	July 4 June 21 July 18	Oct. 18 Sept. 12 Nov. 1	14 5 32	Nov. 1 Sept. 30 Nov. 15		
				<u> </u>	WILD	BLACKI	BERRY.		<u> </u>		I	1	
1883 1884 1885 1885 1886 1887 1887 1888 1889	Apr. 20 Apr. 27 Apr. 24 Apr. 13 Apr. 25 Apr. 27 Apr. 19 Apr. 10	May 7 May 1 May 14 Apr. 22 May 10 May 10 May 8 May 2	5 5 11 3 6 15 3 12	May 12 May 6 May 25 Apr. 25 May 16 May 25 May 11 May 14	June 7 May 26 May 31 May 21 May 22 June 3 May 22 June 2	June 10 May 30 June 5 May 27 May 27 June 8 May 26 June 6	61 56 57 55 57 42 59 44	Aug. 10 July 25 Aug. 1 July 21 July 23 July 20 July 24 July 20	Sept. 20 Oct. 9 Oct. 22 Sept. 25 Oct. 10 Sept. 25 Oct. 2	20 11 16 21 25 20 14 22	Oct. 10 Oct. 20 Oct. 25 Nov. 12 Oct. 20 Oct. 30 Oct. 9 Oct. 24	Scant. Scant. Scant. Scant. Full.	Fair. Good. Fair. Good. Good.
1891 1892 1893 1893 1894 1894 1895 1896 1896 1899 1899 1899 1899 19900 1	Apr. 20 Apr. 29 Apr. 16 Apr. 20 Apr. 20 Apr. 15 Apr. 15 Apr. 17 Apr. 22	Apr. 27 May 5 May 8 Apr. 30 Apr. 30 Apr. 24 Apr. 28 May 2 Apr. 27	5 9 12 7 6 8 10 6 8	May 2 May 14 May 20 May 7 May 2 May 2 May 8 May 8 May 8	May 30 June 3 June 2 May 22 May 27 May 19 May 29 May 29 June 2	June 3 June 6 June 5 May 25 May 30 May 23 June 3 June 4 June 5	49 50 53 54 51 57 56 37	July 22 July 26 July 28 July 18 July 20 None July 30 July 30 July 30 July 12	Oct. 13 Oct. 6 Oct. 17 Sept. 27 Oct. 22 Oct. 8 Oct. 8	18 17 13 19 8 16 19	Oct. 31 Oct. 23 Oct. 30 Oct. 16 Oct. 30 Oct. 24 Oct. 27	Full Scant. Scant Scant Full None Full	Good. Fair. Poor. Good. Good. None. Good.
1902	• • • • • • • • • • • • • • • • • • • •				June 1							••••••	
1905 1908 1908 1907 1908 1909	Apr. 24 Apr. 17 May 5 Apr. 22 Apr. 28 Apr. 5	May 15 May 5 May 5 May 16 May 2 May 6 Apr. 18	9 7 10 8 16 9	May 24 May 12 May 15 May 24 May 18 May 15 Apr. 30	June 8 May 30 May 26 June 16 May 26 June 5 June 8	June 12 June 4 May 30 June 20 May 30 June 10 June 13	40 46 44 32 43 57 32	July 22 July 20 July 13 July 22 July 12 Aug. 6 July 15	Oct. 28 Sept. 28 Oct. 22 Oct. 18	7 14 11 12	Nov. 4 Oct. 12 Nov. 2 Oct. 30	Full Full Full Full Full Full Full	Good. Good. Good. Good. Good. Good.
.913		May 10 May 3	9 12	May 19 May 15	Мау 26 Мау 26	May 29 May 30	50 54	July 18 July 23	Oct. 26 Oct. 11	17 7	Nov. 22 Oct. 18	Full	Good.
Larlinet	Apr. 21 Apr. 5 May 5	May 3 Apr. 18 May 16	9 3 15	May 12 Apr. 25 May 25	May 29 May 19 June 16	June 3 May 23 June 20	50 32 61	July 23 July 12 Aug. 10	Oct. 10 Sept. 20 Oct. 28	16 7 25	Oct. 26 Oct. 9 Nov. 22	• • • • • • • • • • • • • • • • • • • •	

95627—15——3

## SUPPLEMENT NO. 2.

Table 1.—Phenological observations at Wauseon, Ohio, on 16 different kinds of fruits, 1883 to 1912, inclusive—Continued.

					CONC	ORD G	RAPE.						
Year.	Buds started.	First fully formed leaf.	Days from 2 to 4	In full leaf.	First bloom.	In full bloom.	Days from 6 to 8	Fruit ripe.	Com- plete change in foliage.	Days from 9 to 11	Divested of leaves.	Quantity of fruit.	Quality of fruit.
	1	2	8	4	5	6	7	8	9	10	11	12	13
1883 1884 1885 1886 1887 1888 1888 1889	May 10 May 5 May 14 Apr. 22 May 7 May 14 Apr. 27 Apr. 28	May 25 May 15 May 23 May 4 May 17 May 26 May 11 May 17	14 11 7 18 11 13 7 16	June 8 May 26 May 30 May 22 May 28 June 8 May 18 June 2	June 17 June 19 June 16 June 4 June 9 June 16 June 13 June 11	June 20 June 22 June 20 June 9 June 14 June 20 June 17 June 16	97 88 95 84 86 84 93 91	Sept. 25 Sept. 18 Sept. 23 Sept. 1 Sept. 8 Sept. 12 Sept. 18 Sept. 15	Oct. 8. Oct. 24 Oct. 9 Oct. 8 Sept. 25 Oct. 10 Sept. 22 Oct. 2	12 12 21 24 30 18 11 23	Oct. 20 Nov. 5 Oct. 30 Nov. 1 Oct. 25 Oct. 28 Oct. 3 Oct. 25	Full Full Full Full Full Full	Good. Good. Good. Good. Good.
1891 1892 1893 1894 1895 1896 1897 1898 1898	Apr. 25 May 5 May 10 Apr. 30	May 9 May 19 May 19 May 12 May 9 Apr. 30 May 14 May 10 May 2	21 20 15 8 21 10 18 9	May 30 June 8 June 3 May 20 May 30 May 10 June 1 May 19 May 11	June 14 June 16 June 14 June 11 June 5 June 19 June 18 June 10 May 24	June 18 June 20 June 18 June 14 June 9 June 24 June 22 June 12 June 22	104 87 99 93 82 73 94 114	Sept. 30 Sept. 15 Sept. 25 Sept. 15 Aug. 30 Sept. 5 None Sept. 16 Sept. 20	Oct. 13 Oct. 6 Oct. 16 Sept. 27 Oct. 11 Oct. 2 Oct. 18		Oct. 31 Oct. 25 Oct. 30 Oct. 16 Oct. 22 Oct. 14 Nov. 8	Full. Full. Scant. Scant Full. None.	Good. Good. Good. Fair. Good. Good. None.
1901 1902 1903 1904 1905 1906 1907 1908 1909 1910	Apr. 30 Apr. 29 May 16 May 8 May 8 May 15 May 4	May 22 May 18 May 10 June 4 May 20 May 24 May 21	11 17 20 8 6 10	June 2 June 4 May 30 June 12 May 26 June 3 June 4	June 18 June 14 June 9 June 24 June 6 June 16 June 15	June 25 June 18 June 13 June 28 June 11 June 21 June 19	86 85 94 84 99 91	Sept. 20 Sept. 12 Sept. 15 Sept. 20 Sept. 18 Sept. 20 Sept. 16			Nov. 4 Oct. 12 Nov. 5	Not many	Good. Good. Good. Good. Good. Good. Good.
1911 1912 Average Earliest	May 6	May 8 May 18	14 12 13 6	May 22 May 30 May 29 May 10	June 22 June 11 June 13 May 24	June 26 June 16 June 17 May 29	71 90 90 73	Sept. 5 Sept. 14 Sept. 15 Aug. 30 Sept. 30	Oct. 12 Oct. 11 Oct. 8 Sept. 22	18 18 18 11	Oct. 30 Oct. 28 Oct. 26 Oct. 3 Nov. 8	Full	Good. Good.
LABOUSS	May 10	June 4	21	June 12	June 24	June 28	GRAPE	<u></u>	Oct. 25	44	1107. 8		
1883	May 10 May 5 May 3 Apr. 20 May 7 May 9 Apr. 27 Apr. 28	May 23 May 15 May 17 May 5 May 18 May 25 May 10 May 16	16 10 10 17 10 11 7	June 8 May 25 May 27 May 22 May 28 June 5 May 17 June 2	June 9 June 5 June 5 May 23 June 4 June 12 May 28 June 5	June 13 June 8 June 8 May 27 June 8 June 15 June 1 June 8	109 117 93 101 111 114	Sept. 30 None Sept. 25 Sept. 24 Sept. 10 Sept. 25 Sept. 20 Sept. 30	Sept. 18 Oct. 24 Oct. 9 Sept. 25 Sept. 25 Oct. 10 Sept. 25 Sept. 30	22 12 14 20 5 16 8 20	Oct. 10 Nov. 5 Oct. 23 Oct. 15 Sept. 30 Oct. 26 Oct. 3 Oct. 20	Scant Full Full Scant Full	Fair. Good. Good. Fair. Good.
1891	Apr. 29 May 5 May 9 Apr. 29 Apr. 30 Apr. 20 May 5 Apr. 30	May 8 May 17 May 18 May 9 May 6 Apr. 27 May 11 May 8 May 3	22 19 14 9 22 11 19 9	May 30 June 5 June 1 May 18 May 28 May 8 May 30 May 17 May 14	May 16 June 14 June 2 May 26 June 3 May 17 June 10 June 6 May 23	May 19 June 17 June 6 May 31 June 7 May 22 June 14 June 10 May 27	135 85 121 122 125 80 77 112		Oct. 13 Oct. 6 Oct. 17 Sept. 27 Oct. 11 Oct. 2 Oct. 10			Scant Full Full Scant Full Full Full	Good.
1901 1902 1903 1904 1905 1906 1907 1908 1909													

May 15

May 12 Apr. 27 May 25

Мау 7

May 1 Apr. 20 May 10 14

14 9 22 May 29

May 26 May 8 June 8 June 4

June 1 May 16 June 14 June 7

June 5 May 19 June 17 Sept. 20

Sept. 19 Aug. 10 Oct. 10 Oct. 11

Oct. 5 Sept. 18 Oct. 24 9

15 5 **22**  Oct. 20

Oct. 20 Oct. 3 Nov. 5 Good.

105

106 77 135

Table 1.—Phenological observations at Wauseon, Ohio, on 16 different kinds of fruits, 1888 to 1912, inclusive—Continued.

#### BLACK HUCKLEBERRY.

Year.	Buds started.	First fully formed leaf.	Days from 2 to 4	In full leaf,	First bloom.	In full bloom.	Days from 6 to 8	Fruit ripe.	Com- plete change in foliage.	Days from 9 to 11	Divested of leaves.	Quantity of fruit.	Quality of fruit.
_	1	2	8	4	5	6	7	8	9	10	11	12	18
1883 1884 1885 1886	May 13 May 1	May 21 May 16	6 8	May 27 May 24	May 30 May 20	June 3 May 25			Sept. 20 Sept. 20	25 35	Oet. 15 Oet. 25		
1886 1887		May 10	ii	May 21	Мау 20	Мау 25	51	July 15	Sept. 30	25	Oct. 25	Full	Good.
1889 1890	May 9 May 10	May 12 May 18	4 7	May 16 May 25	May 14 May 18	May 19 May 23	66 58	July 24 July 20	Sept. 25 Oct. 1	30 17	Oct. 25 Oct. 18	FullFull	Good. Good.
1891 1892 1893		• • • • • • • • • • • • • • • • • • • •	12	Мау 13	· ·	May 9 May 29	68 60	July 16 July 28	Sept. 28			Full Full	Good. Good.
1896 1897 1898	Apr. 18 May 3	Apr. 25 May 12	10 10	May 5 May 22	May 6 May 15	May 10 May 20	69 59	July 8 July 18		12	Oct. 14 Oct. 18	FullFull	Good. Good.
1901													:
1904 1905 1906 1907 1907	Apr. 24 May 5		8 13 10 11 8	May 23 May 16 May 25 June 10 May 18	May 18 May 16 May 21 May 30 May 17 May 19	May 22 May 20 May 25 June 3 May 20 May 24	58 61 54 62 73 57	July 19 July 20 July 18 Aug. 4 Aug. 1 July 21	Oct. 10	12	Oct. 22	Not full. Full. Scant. Not full. Full. Scant.	Good. Good. Good. Good.
1911 1912		May 20	10	May 30	May 15 May 21	May 21 May 26	58 57	July 18 July 22	Oct. 12	13	Oct. 25	None Full Full	
Average Earliest Latest	May 2 Apr. 18 May 13	May 13 Apr. 25 May 30	9 4 13	May 22 May 5 June 10	May 18 May 5 May 30	May 23 May 9 June 6	60 51 73	July 21 July 8 Aug. 4	Oct. 2 Oct. 20 Oct. 10	18 12 35	Oct. 20 Oct. 14 Oct. 25		
	<u> </u>				BLUE 1	HUCKLI	EBERRY			<u>'</u>		1	
1883 1884 1885													
1886 1887													
1886 1887 1888 1889 1890	May 5	May 11			May 19 May 13	May 24 May 17	55 70	July 18	Sept. 25 Sept. 25	30	Oct. 25	Full	Good.
1891	May 8		10 10	May 13 May 22	May 12	May 16	64	July 26 July 19	Oct. 1	17	Oct. 18	Full	Good.
1892 1893 1894 1894 1895		May 1		May 14	May 4 May 23	May 8 May 27	69 62	July 16 July 28	Sept. 30	15	Oct. 15	Full	Good. Good.
1897 1898 1890	Apr. 19 May 3	Apr. 25 May 13	10 9	May 5 May 22	May 5 May 15	May 9 May 19	54 62		Oct. 2 Oct. 2	13 14		Full Full	Good. Good.
1901 1902 1903					May 18					•••••			
1904 1905 1908 1907 1908 1910 1910	Apr. 25 May 8	May 2 May 17 May 31 May 12 May 26	12 9 10 7	May 14 May 26 June 10 May 19	May 14 May 22 May 30 May 19 May 19	May 19 May 26 June 3 May 22 May 23	64 55 60 72 58	July 22 July 20 Aug. 2 Aug. 2 July 20	Oct. 10	8	Oct. 18	Full. Scant. Scant Full. Scant.	Good. Fair. Good. Good. Fair.
1815					May 20	May 24	56	July 20 July 19				Full	Good.
Average Earliest Latest	i	May 11 Apr. 25 May 31	9 5 13	May 20 May 5 June 10	May 16 May 4	May 20 May 8 June 3	60 54 72	July 19 July 2 Aug. 2	Oct. 1 Sept. 25 Oct. 28	19 8 35	Oct. 20 Oct. 15 Oct. 30		

Table 1.—Phenological observations at Wauseon, Ohio, on 16 different kinds of fruits, 1883 to 1912, inclusive—Concluded.

WILD STRAWBERRY.

Year.	Buds started.	First fully formed leaf.	Days from 2 to 4	In full leaf.	First bloom.	In full bloom.	Days from 6 to 8	Fruit ripe.	Com- plete change in foliage.	Days from 9 to 11	Divested of leaves.	Quantity of fruit.	Quality of fruit.
	1	2	8	4	5	6	7	8	9	10	11	12	18
1883				May 1 Apr. 14	May 3	May 8 Apr. 29 May 7 May 8 May 13 May 15 May 2 May 2 May 2 May 2 May 2 May 4 May 15 May 4 May 15	32 26 30 37 27 26 31 35 27 33 30 15 29	June 9 May 25 June 6 June 14 June 9 June 10 June 2 June 8 June 4 May 19 June 13 June 13 May 29				Full Full Full Full Scant Full Scant Scant Scant	Good. Good. Good. Good. Good. Good. Good. Good. Good. Fair.
899 900 901 902 903 904													
906 907 908 909 910					May 15	May 19		June 15 June 16				Full Not full	
912 Average Earliest Latest					May 6 May 2 Apr. 11 May 15	May 7 Apr. 15	23 30 23 62	June 8 June 6 May 19 June 16				Full	

### TAME STRAWBERRY.

		i	1	,	ī	1				- 1	1		ı	í i	ì
4.000	1		l .	35 1	35 5	35	٠. ا	0.0	T 1	7					
1883				May 1	May 5	May	12	36	June 1						
1884															
1885				May 5	May 13	May	16 İ	25	June 1	0					
							- 6	56	May 2						
1886					Apr. 28	May	.0	20				· · · · · · · · · · · ·		**************	C-cd
1887	1	1		1	May 7	May	10	32	June 1	11				Full	Good.
1888				Į.	May 11	May	16	30	June 1	5				Scant.	Fair.
							10	20	June 1						Good.
1889						May	12	00							
1890					May 13	May	16	27	June 1	ız				Full	Good.
	1	l	1	1		1	- 1	i		- 1	i			i l	
1891	1		ì		May 6	Mav	0.1	28	June	6				Full	Good.
								20	0 UIL	E				Tall	Goon.
1892						May	11	30	June 1					Full	
1893	1	1		l	May 11	May	14	30	June 1	3				Full	Good.
1894						May	2	36	June					Full	Good.
								90						Full	Good.
1895					May 3	May	7	∖ 30							
1896		1	l	l	May 2	Mav	- 6 i	15	May 2	1			<b></b>	Full	Good.
1897					May 9	May	13	30	June 1	2				Full	Good.
								04	June						400
1898						May	9	24							ĺ
1899	1		1		May 5	May	91	26	June	4				1	
1900						1	- 1	. 1						l	1
1300															ł
	1		· .			i									
1901		l			May 3										
1902			1										l	l	1
															ļ
1903						1.35	:::		T					7313	Good.
1904					May 4			27	June					Full	
1905	1	1			Apr. 26	Apr.	30 I	31	May 3	31				Full	Good.
1906						May		29	June					Full	Good.
1000								40	June 2					Full	Good.
1907				1		May	_8	4.5							
1908	. I	l			Apr. 24	Apr.	28	37	June	4			l	Full	Good.
1909					May 12	May	17	28	June 1	14				Full	Good.
					1			50		- 1				Full	Good.
1910					Apr. 11	Apr.	10	ן טפ	June	٠.				run	40034
	1		1	1	i	1	1			- 1			1	1	
1911	i	i	1		May 1	May	13	20	June	2	1			Full	Good.
						May		26	June					Full	Good.
1912					Apr. 30	may	TO	20	amna	9				- uu	~~~
	i	1	1	!	1	1				_	1		l	1	l
Average	1	l	i .	1	May 4	May	8	31	June	8			l		
Earliest						Apr.		15	May 2						
															i
Latest				1	May 13	May	17	50	June 2	ευ					l .
	1		1	1	1	1								1	
	4			,	•	<u></u>	· ·						·	·	

Table 2.—Phenological observations at Wauseon, Ohio, on 20 different field and garden crops, 1883 to 1912, inclusive.

		_	ABLE 2	-1 160100C	yıcı	ii 00861 00	1000168 46	maa	36016	, Omo, or	i zo aij	erene ju	iu a	nu yanuer	crops, 1	000	10 1312,	encousous	•		
Year.	Planted.	Days from 1 to 3.	Above ground.	In blossom.	Days from 4 to 6.	Ripe.	Ready for use.	Days from 3 to 7.	Per cent of a good crop.	Quality of crop.	Year.	Planted.	Days from 1 to 8.	Above ground.	In blossom.	Days from 4 to 6.	Ripe.	Ready for use.	Days from 3 to 7.	Per cent of a good crop.	Quality of crop.
	1	2	8	4	5	6	7	8	9	10		1	2	8	4	5	6	7	8	9	10
			!	WI	IEA	T.	J	<u> </u>	J						co	RN	•	1	<u></u>	<u>, I</u>	
1883 1884 1885 1886 1887 1888 1889	Sept. 14 Sept. 24 Sept. 9 Sept. 16 Sept. 22 Sept. 14 Sept. 19 Sept. 19	8 6 19 6 4 7 16 16	Sept. 22 Sept. 30 Sept. 28 Sept. 22 Sept. 26 Sept. 21 Oct. 5 Oct. 5	June 12 June 11 June 10 June 1 June 1 June 16 June 11 June 10	32 25 30 30 27 24 32 25	July 14 July 6 July 10 July 1 June 28 July 10 July 13 July 5	July 14 July 6 July 10 July 1 June 28 July 10 July 13 July 5	295 280 286 289 280 294 298 274	90 85 50 60 40 85 60 40	Fair. Good. Good. Fair. Good. Good. Good. Good.	1883 1884 1885 1886 1887 1888 1899	May 12 May 16 May 18 May 11 May 20 May 15 May 15 May 27	13 8 7 8 5 10 8 5	May 25 May 24 May 25 May 19 May 25 May 25 May 23 June 1	July 29 July 24 July 23 July 17 July 24 July 25 Aug. 3 July 26	73 53 65 60 53 57 58 56	Oct. 10 Sept. 15 Sept. 26 Sept. 15 Sept. 15 Sept. 20 Sept. 30 Sept. 20	Aug. 25 Aug. 16 Aug. 11 Aug. 10 Aug. 15 Aug. 12 Sept. 2 Aug. 12	92 84 78 83 82 79 102 72	60 90 65 85 60 75 85 50	Poor. Good. Fair. Good. Fair. Good. Fair.
1891 1892 1893 1894 1895 1896 1897 1898 1899	Sept. 17 Sept. 7 Sept. 17 Sept. 29 Sept. 12 Sept. 23 Sept. 18 Oct. 2 Sept. 17 Oct. 2	8 6 5 7 5 7 8 12 6	Sept. 25 Sept. 13 Sept. 22 Oct. 6 Sept. 17 Sept. 30 Sept. 26 Oct. 14 Sept. 23 Oct. 8	June 6 June 10 June 6 June 6 June 3 May 24 June 16 June 6 June 10 June 10	26 28 29 25 25 30 23 25 24 13	July 2 July 5 July 1 June 28 June 23 July 9 July 9 July 4 June 29	July 2 July 8 July 5 July 1 June 28 June 23 July 1 July 1 July 4 June 29	269 285	90 70 80 50 90 50 80	Good. Good. Good. Fair. Good. Fair. Good.	1891 1892 1893 1894 1895 1896 1897 1898 1899	May 12 June 18 May 18 May 1 May 1 May 9 May 22 May 18 May 18	10 5 10 9 6 5 14 7 9	May 22 June 23 May 28 May 10 May 7 May 14 June 5 May 25 May 27	July 27 Aug. 6 July 25 July 17 July 22 July 10 July 20 July 20 July 17	53 50 49 44 50 51 54 42 44	Sept. 18 Sept. 25 Sept. 12 Aug. 30 Sept. 10 Aug. 30 Sept. 12 Aug. 31 Aug. 30 Sept. 6	Aug. 24 Aug. 30 Aug. 18 Aug. 8 Aug. 22 July 29 Aug. 18 Aug. 10 Aug. 10	94 68 82 90 107 77 74 77 75	60 60 60 80 100 80	Good. Fair. Good. Fair. Good. Good. Good. Good. Good. Good.
1901 1902 1903 1904 1905	*Oct. 19	10	Oct. 29	June 15 June 8	17	July 6 July 9 July 6 July 2	July 6		40  65	Good.	1901 1902 1903 1904	May 12 May 7 May 9	15  10	May 27	July 18 July 25	49	Sept. 5 Sept. 3 Sept. 10	Aug. 16	81 95	80 75	Good.
1904 1905 1906 1907 1908 1909	Sept. 24 Sept. 12 Sept. 15 Sept. 20	9 10  5 15	Oct. 3 Sept. 22 Sept. 20 Oct. 5 Oct. 5	June 8 June 5 June 20 June 2 June 12 June 21	26 27 26 25 25 25 20	July 2 July 4 July 2 July 16 June 27 July 7 July 11	July 4 July 2 July 16 June 27 July 7 July 11	275 284 281 276 280	80 75 90 90 90 85	Good. Good. Good. Good. Good. Good.	1905 1906 1907 1908 1909	May 9 May 10 Apr. 26 May 21 May 14 May 11	6 6 10 7 7 10	May 17 May 15 May 16 May 6 May 28 May 21 May 21	July 25 May 18 July 17 July 30 July 30 Aug. 6 Aug. 1	43 55. 35 47 50 60	Aug. 30 Sept. 10 Sept. 3 Sept. 15 Sept. 25 Sept. 30	Aug. 10 Aug. 16	107 92 99 79 96 93	75 180 75 80 80 90	Good. Good. Good. Good. Good. Fair.
1911 1912 Aver- Earli-	Sept. 20 Sept. 20 Sept. 20	10 9 9	Sept. 30 Sept. 29 Sept. 29	June 1 June 14 June 9	24 28 26	June 25 July 12 July 5	June 25 July 12 July 5	268 296 279	90 5 67	Good. Fair.	1911 1912 Aver- age. Earli-	May 10 May 10 May 14	7 10 9	May 17 May 20 May 23	July 20 July 22 July 25	50 42 50	Sept. 8 Sept. 2 Sept. 13	Aug. 15 Aug. 16 Aug. 17	90 88 87	80 95 76	Fair. Good.
Latest	Sept. 7 *Oct. 19	19	Sept. 13 Oct. 29	May 24 June 21	13 32	June 23 July 16	June 23 July 16	261 299	,	,	Earli- est. Latest	Apr. 26 June 18	15	June 23	July 10 Aug. 6	35 73	Aug. 30 Oct. 10	July 29 Sept. 2	68 107		
					ATS			<u> </u>	1			ļ	<u> </u>	<u> </u>	OTATO	ES	(early).		<u> </u>	!	
1883 1884 1885 1886 1887 1888 1889 1890	Apr. 27 Apr. 24 Apr. 30 Apr. 19 Apr. 9 Apr. 20 Apr. 10 Apr. 16	10 9 13 6 12 12 11 11	May 7 May 3 May 13 Apr. 25 Apr. 21 May 2 Apr. 21 Apr. 28	July 14 July 8 July 20 June 28 June 25 July 3 July 10 July 2	26 17 12 24 21 28 24 13	Aug. 9 July 25 Aug. 1 July 22 July 16 July 31 Aug. 3 July 15	Aug. 9 July 25 Aug. 1 July 16 July 13 Aug. 3 July 15	82 83 80 88 86 90 103 78	90 100 100 90 90	Good. Good. Good. Good. Good.	1883 1884 1885 1886 1887 1888 1889	Apr. 12 Apr. 21 Apr. 23 Apr. 26 Apr. 23 Apr. 22 Apr. 22 Apr. 25	26 23 26 17 15 25 19 18	May 8 May 14 May 19 May 9 May 11 May 18 May 11 May 13	June 10 June 18 June 25 June 12 June 18 June 20 June 21 June 14	71 42 36 38 37 47 55 44	Aug. 20 July 30 July 31 July 25 July 25 Aug. 8 Aug. 15 July 28	June 30 July 2 July 9 June 24 June 30 July 10 June 27 June 22	53 50 51 46 50 53 47 40	85 100 70 95 50	Good. Good. Good. Good. Fair.
1892 1893 1894 1895 1896 1897 1898 1899	Apr. 21 Apr. 26 Apr. 7 Apr. 6 Apr. 14 Apr. 13 Apr. 19 Apr. 16	9 7 11 12 13 5 9 11 7 6	Apr. 30 May 3 Apr. 18 Apr. 18 Apr. 19 Apr. 30 Apr. 24 Apr. 26 Apr. 22	June 30 July 6 June 29 June 30 June 26 June 16 July 1 July 3 June 24 June 25	27 27 23 17 19 26 23 16 24 26	July 27 Aug. 2 July 22 July 17 July 15 July 12 July 24 July 19 July 18 July 21	July 27 Aug. 2 July 22 July 17 July 15 July 24 July 24 July 19 July 18 July 21	88 91 95 90 87 84 85 86 83 90	85 75 80 80 85 100 80	Good. Good. Good. Good. Good. Good. Good.	1891 1892 1893 1894 1895 1896 1897 1898 1809	Apr. 24 Apr. 28 Apr. 24 Apr. 17 Apr. 27 May 1 May 6 May 21 Apr. 25 Apr. 28	17 16 21 14 10 11 14 9 11	May 11 May 14 May 15 May 1 May 12 May 20 May 30 May 6	June 17 June 20 June 16 June 8 June 17 June 17 June 14 June 25 June 29 June 10	51 56 46 54 64 55 33 52 56	Aug. 7 Aug. 15 Aug. 1 Aug. 1 Aug. 20 Aug. 28 July 28 Aug. 20 Aug. 5	June 29 July 1 July 5 June 25 July 10 June 19 July 10 July 30 June 20	49 48 51 55 64 38 51 61 45	95 90 60 60 60 100 60	Good. Good. Good. Good. Good. Good. Good.
1901 1902 1903 1904 1905 1908 1909 1910	Apr. 10 Apr. 16 Apr. 6 Apr. 12 Mar. 28 Apr. 20 Apr. 12 Apr. 11	10 10 13 9 29 10 8 11	Apr. 20 Apr. 26 Apr. 19 Apr. 21 Apr. 26 Apr. 30 Apr. 20 Apr. 20 Apr. 22	June 26  July 8 June 30 June 18 July 10 July 1 July 2 June 30	22 	July 18 July 25 July 25 July 20 July 20 July 23 Aug. 2 July 28 July 28 July 19	July 22 July 20 July 23	1 92	90 75 80 50 75 85 80	Good. Good. Good. Good. Good. Good.	1901	Apr. 17 Apr. 21 May 5 May 4 Apr. 24 May 4 Apr. 22 May 5 Apr. 8	12 6 16 10 18 7 30	May 17 May 10 May 10 May 14 May 10 May 12 May 8	June 20 June 8 May 28 June 20 June 6 June 11 June 18 June 8 June 8 June 18	83 80 82 63 54 58 63	Sept. 12 Aug. 25 Sept. 1 Aug. 20 Aug. 1 Aug. 5 Aug. 20	June 23  June 27  July 3  July 7  July 12  July 3  July 10	48 54 54 63 52 63	75 80 80 45 50 60 85	Good. Good. Good. Good. Good. Good.
Average. Earli- Latest	Apr. 10 Apr. 20 Apr. 15 Mar. 28 Apr. 30	9 13 11 5 29	Apr. 19 May 3 Apr. 26 Apr. 18 May 13	June 30 June 26 July 1 June 16 July 20	17 26 23 11 35	July 17 July 22 July 24 July 12 Aug. 9	July 17 July 22 July 24 July 12 Aug. 9	89 80 89 80 103	80 100 88	Good. Good.	1911 1912 Average. Earliest. Latest	May 4 Apr. 16 Apr. 26 Apr. 8 May 21	21 23 17 6 30	May 25 May 9 May 13 May 1 May 30	June 24 June 16 June 15 May 28 June 29	34 39 55 33 83	July 28 July 25 Aug. 9 July 20 Sept. 12	July 8 June 28 July 2 June 19 July 30	44 50 50 38 64	40 75 72	Fair. Good.
				v dry and	honé	le mada la	to nomina	·	·	+ 0	<b>AND</b> 11500	maan +ill A	11011	et and the	n come on	moli	l and mad	e good cror		···	

<sup>\*</sup> Ground very dry and hard; made late sowing.

 $<sup>\</sup>dagger$  Corn was poor till August, and then came on well and made good crop.

TABLE 2.-- Phenological observations at Wauseon, Ohio, on 20 different field and garden crops, 1883 to 1912, inclusive--- Continued.

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Year.	Planted.	Days from 1 to 3.	Above ground.	In blossom.	Days from 4 to 6.	Ripe.	Ready for use.	Days from 3 to 7.	Per cent of a	Quality of crop.	Yesr.	Planted.	Days from 1 to 8.	Above ground.	In blossom,	Days from 4 to 6.	Ripe.	Ready for use.	Days from 3 to 7.	Per cent of a good crop.	Quality of crop.
	1	2	8	4	5	6	7	8	9	10		1	2	8	4	5	6	7	8	9	10
		!	,	POTAT	OES	S (Late.)			J	<u> </u>			<u>,</u>	L	ATE BE	ANS	S)Lima)			1	
1883 1884 1885 1886	May 12 May 20 May 25 May 11 June 4	18 12 12 15 8 12	May 30 June 1 June 6 May 26 June 12	June 30 July 4 July 14 June 27 July 20	66 59 68 53 41	Sept. 5 Sept. 1 Sept. 20 Aug. 20 Aug. 30 Sept. 10 Sept. 1	July 26 July 20 July 28 July 12 Aug. 6	57 49 52 47 55 56 51	90 20 75 95	Good. Fair. Good.	1883 1884 1885 1886 1887	May 5 May 10 June 1 May 14 May 21 May 5	15 13 8 12 12 12 6 22 13	May 20 May 23 June 9 May 26 June 2 May 11	July 16 June 25 July 13 July 5 July 7	45 60 69 51	Aug. 30 Aug. 24 Sept. 20 Aug. 25	July 31 Aug. 18 Aug. 3	69 70 69	50	Poor. Failure. Failure
1888 1889 1890	May 21 May 17 May 28	11 11 7	June 2 May 28 June 4	July 6 July 1 July 10	66 62 47	Sept. 10 Sept. 1 Aug. 26	July 28 July 18 July 20	51 51	95 40	Good. Fair.	1889 1890	May 22 May 16	22 13	June 13 May 29	Moles July 15 July 2	72 49	Sept. 15 Aug. 20	Aug. 12 July 30	60 62	50 50	Fair. Good.
1891	May 8 June 29 May 15 May 2 Apr. 30 May 12 June 1 May 21 June 3	10 8 17 17 18 12 14 11 6	May 18 July 7 June 1 May 19 May 18 May 24 June 15 June 1 June 9	June 28 Aug. 20 June 30 June 27 June 28 June 25 Aug. 2 July 8 July 14	53 41 80 95 61 79 49 64 56	Aug. 20 Sept. 30 Sept. 18 Sept. 30 Aug. 28 Sept. 12 Sept. 20 Sept. 10 Sept. 8	July 15 Sept. 1 July 27 July 24 July 27 July 25 Aug. 25 Aug. 20 Aug. 8	58 56 56 66 70 62 71 80 60	90 60 60 60 *30 *80 	Fair. Good. Good. Good. Fair. Good.	1891 1892 1893 1894 1895 1896 1897 1898 1899	May 8 Apr. 28 May 15 Apr. 18 Apr. 27 May 19 May 25 May 16 May 1	13 18 17 16 12 9 14 9 9	May 21 May 16 June 1 May 4 May 9 May 10 June 2 June 4 May 25 May 13	June 26 June 27 June 29 June 20 July 15 June 23 July 6 July 14 July 5	68 49 57 61 36 48 56 60 56	Sept. 2 Aug. 15 Aug. 25 Aug. 20 Aug. 10 Aug. 31 Sept. 12 Aug. 30	Aug. 8 Aug. 15 Aug. 1 Aug. 1 Aug. 5 July 27 Aug. 16 Aug. 25 Aug. 6	79 84 75 89 88 78 75 82 73	80 60 50 25 30 80 80	Good. Good. Good. Good. Good. Good.
1901 1902 1903 1904	May 16						Sept. 16			-	1901 1902 1903 1904 1905	Apr. 22 May 9	10	May 10	July 6		Sant 10	Ang 5	78	60	Good.
1905 1906 1907 1908 1909	May 26 May 4 May 5	8 15 10	June 3 May 19 May 15	July 3 July 6 June 20	74 61 61	Sept. 15 Sept. 5 Aug. 20	Aug. 12 Aug. 10 July 9	70 83 55	80 40 75	Good.	1906 1907 1908 1909 1910	May 12 May 6 Apr. 23 May 13 May 10	12	May 19 May 24 May 16 May 18 May 27 May 24	July 6 June 29 July 10 July 3 July 20 July 17	66 52 58 69 57 63	Sept. 10 Aug. 20 Sept. 6 Sept. 10 Sept. 15 Sept. 18	Aug. 5 July 24 Aug. 25 Aug. 25 Aug. 23 Aug. 24	61 101 99 88 92	70 80 80 60	Good. Good. Good.
1911 1912	May 23	12	June 4	July 1	91	Sept. 30	Aug. 26	83	85	Good.	1911 1912	May 4 Apr. 24	14 16	May 18 May 10	June 19 June 29	57 56	Aug. 14 Aug. 24	Aug. 1 July 30	75 82	80 75	Good.
Aver- age. Earli-	May 19 Apr. 30	12 7	May 31 May 15	July 7 June 25	63 41	Sept. 8 Aug. 20	Aug. 3 July 9	64 46	66		Aver- age. Earli-	May 8 Apr. 18	14	May 22 May 4	July 3 June 20	58 36	Aug. 30 Aug. 10	Aug. 8 July 24	78 60	60	
agf i	June 29	18	July 7	Aug. 20	95	Sept. 30	Sept. 16	83			est. Latest	-	25	June 13	July 20	69	Sept. 25	Aug. 25	101		
•		<u></u>	EARI	Y BEAN	1S (	Golden	Wax).		•				<u>,                                     </u>	EAR	LY PEA	<b>s</b> (1	Little Ge	m).		<u>'</u>	
1883 1884 1885 1886 1887 1888 1889	May 14 Apr. 21 Apr. 28 Apr. 23 Apr. 27	11 16 8 9 13 16 14 20	May 2 May 10 May 22 Apr. 30 May 11 May 9 May 11 May 14	June 20 June 15 June 23 June 8 June 9 June 17 June 21 June 16	1 40	Aug. 22 July 30 Aug. 12 July 15 July 22 Aug. 8 Aug. 5 July 24	July 6 June 27 July 8 June 21 June 24 July 6 July 5 July 2	65 48 47 52 44 58 54 49	90 100 60 100 100	Good. Good. Good. Good. Good. Good.	1883 1884 1885 1886 1887 1888 1889	Apr. 20 Apr. 24 May 14 Apr. 21 Apr. 28 Apr. 23 Apr. 13 Apr. 24	8 12 8 7 9 16 12 13	Apr. 28 May 6 May 12 Apr. 28 May 7 May 9 Apr. 25 May 7	June 8 June 5 June 15 May 30 June 3 June 15 May 27 June 6	13 40 33 37 35 45 42 33	July 21 July 15 July 18 July 6 July 8 July 20 July 8 July 9	June 29 June 24 July 6 June 18 June 18 July 3 June 26 June 20	62 49 45 51 42 55 62 44	90 100 75 95 90	Good. Good. Good. Good. Good.
1899	Apr. 28 Apr. 28 Apr. 18 Apr. 27 May 1 May 6 Apr. 27	13 11 17 13 9 6 10 15 6	May 7 May 9 May 15 May 1 May 6 May 7 May 16 May 12 May 1 May 13	June 17 June 18 June 20 June 12 June 18 June 16 June 22 June 16 June 7	33 40 40 33 37 42 24 34 37	July 20 July 28 July 30 July 15 July 25 July 28 July 16 July 20 July 14	June 27 July 1 July 4 July 2 July 10 June 26 July 6 June 27 June 19	51 53 50 62 65 40 51 46 49	100 65 90 90 40 100 100	Good. Good. Good. Good. Good.	1891 1892 1893 1894 1895 1896 1897 1898 1899 1900	Apr. 24 Apr. 28 Apr. 28 Apr. 18 Apr. 27 May 1 May 6 Apr. 27 Apr. 25 May 1	12 9 12 12 10 6 9 7 15	May 6 May 7 May 10 Apr. 30 May 7 May 7 May 15 May 6 May 2	June 6 June 10 June 10 June 3 June 12 June 12 June 19 May 30 June 3	30 38 35 35 33 34 27 33 42	July 6 July 15 July 15 July 8 July 15 July 5 July 10 July 1 July 1 July 14	June 22 June 25 June 26 June 19 June 24 June 18 June 30 June 14 June 18	47 49 47 50 48 42 46 39 47	80 50 50 40 30 80 70	Good. Good. Good. Good. Fair. Good. Good.
1903 1904	Apr. 22 Apr. 29 Apr. 27 May 6 Apr. 23 May 13	10 15 10 25 11 12	May 9 May 12 May 16 May 18 May 24 May 21	June 20 June 10 June 18 June 28 June 13 June 24 June 15	40 32 27 37 46 62	July 20 July 20 July 25 July 20 Aug. 10 Aug. 16	July 11 June 27  June 28 July 2 July 5 July 1 July 6 July 10	50 51 50 44 43 50	70 70 90 75	Good.	1901 1902 1903 1904 1905 1906 1907 1908 1909 1910	Apr. 22 Apr. 29 Apr. 22 Apr. 29 Apr. 24 May 6 Apr. 23 May 8 Apr. 14	10 11 12 17 9	May 9 May 5 May 18 May 10 May 17 May 5	June 15 June 6 June 4 June 20 June 2 June 13 June 15	54 36 35 32 37 40	July 30 July 10 July 25 July 4 July 20 July 25	June 26 June 27 July 5 June 22 July 3 July 1	48 53 48 43 47 57	50 80 60 50 50	Good. Good. Good. Good.
1911 1912	May 4 Apr. 24	11 14	May 15 May 8	June 11 June 12	44 43	July 25 July 25	June 26 June 25	42 48	80 100		1911 1912	May 4 Apr. 24	8 13	May 12 May 7	June 2 May 30	31 49	July 3 July 18	June 19 June 24	38 48	60 90	Good.
Aver- age. Earli-	Apr. 28 Apr. 18	13	May 11 Apr. 30	June 17 June 7	40 18	July 27 July 14	July 1 June 19	50 40	85	-	Aver- age. Earli-	Apr. 26	11 6	Мау 7 Арг. 25	June 7 May 27	37 21	July 14 July 1	June 25 June 14	49 38	67	
est. Latest		ł	May 24	June 28	63	Aug. 22	July 10	65			est. Latest		1	May 22	June 20	54	July 30	July 6	62		

<sup>\*</sup> High water killed about two-thirds of crop.

Table 2.—Phenological observations at Wauseon, Ohio, on 20 different field and garden crops, 1883 to 1912, inclusive—Continued.

		,		ological obse				, on 20 u		joeur ana	yun	· · · · · ·	, 1000 u				-		
Year.	Planted.	Days from 1 to 3.	Above ground.	In blossom.  Davs from 4 to 6.	Ripe.	Ready for use.	Days from 8 to 7.	Quality of crop.	Year.	Planted.	Days from 1 to 3.	Above ground.	In blossom.	Days from 4 to 6.	Ripe.	Ready for use.	Days from 8 to 7.	Per cent of a good crop.	Quality of crop.
	1	2	8	4 5	6	7	8 9	10	1	1	2	8	4	5	6	7	8	9	10
			<u> </u>	LATE 1	PEAS.		<u> </u>	<u>-!</u>			<u> </u>	CAF	BAGE (	Win	nigstadt	5).	!		
1883 1884 1885 1886 1887 1888 1889	June 1 Apr. 21 May 21 May 13 May 16	9 9 12 13 10	June 10 Apr. 30 June 2 May 26 May 26	July 13 39 June 11 36 July 4 37 June 17 31 June 25 40	Aug. 21 July 17 Aug. 10 July 18 Aug. 4	Aug. 13 July 4 July 25 July 5 July 12	64 65 65 53 40 40 47 50	Good. Good. Good. Good.	1883 1884 1885 1886 1887 1888 1889 1890	Apr. 21 Apr. 24 May 14 Apr. 20 Apr. 30 Apr. 5 Apr. 27 Apr. 24	9 9 7 6 7 30 13 9	Apr. 10 May 3 May 21 Apr. 26 May 7 May 5 May 10 May 3	•			Aug. 21 Aug. 6 Sept. 10 Aug. 8 Sept. 15 Sept. 8 Aug. 25 Aug. 25	113 95 112 104 131 126 107 114	85 40 80 90 80	Good. Good. Good. Good. Good.
1891 1892 1893 1894 1895 1896 1897 1898 1899	Apr. 28 May 19 May 25 May 29	13  11 10 7	May 11  May 30  June 4  June 6	June 16 39  July 5 25  July 12 29  June 30 32		June 30  July 16 July 25 July 14	50 50 47 40 51 38 40	•	1891 1892 1893 1894 1895 1896 1897 1898 1899 1900	Apr. 25 Apr. 28 Apr. 17 Apr. 18 Apr. 27 May 1 May 6 Apr. 27 Apr. 25 May 1	16 11 15 11 9 7 5 7 6 15	May 11 May 9 May 29 May 6 May 8 May 11 May 4 May 1 May 16				Sept. 1 Aug. 20 Aug. 30 Aug. 14 Sept. 20 Aug. 26 Sept. 20 Aug. 25 Aug. 10	113 103 120 107 137 110 137 113 101	50 90 40 75 40 65 60	Good. Good. Good. Good. Good. Good. Good.
1901 1902 1908 1904 1905 1906 1907 1908 1909	Apr. 29 May 6 Apr. 23	10 11 20	May 9 May 17 May 13	June 18 58 June 27 44 June 19 41	Aug. 15 Aug. 10 July 30	July 14 July 15 July 1	66 60 59 75 49 5	Good. Good. Good.	1901 - 1902 - 1903 - 1904 - 1905 - 1906 - 1907 - 1908 - 1909 - 1910 - 19	Apr. 15 Apr. 27 Apr. 13 May 6 Apr. 23 May 1 Apr. 11	9 7 8 13 11 16	May 6 Apr. 20 May 14 May 6 May 12 Apr. 27				Sept. 20 Sept. 1 Sept. 20 Aug. 15 Aug. 20	133 110 137 95 115	65 50 20 80 80	Good. Good. Fair. Good. Good.
Aver- age. Earli Latest	May 12 Apr. 21 June 1	11 7 20	May 23 Apr. 30 June 10	June 26 37 June 11 25 July 12 58	Aug. 3 July 17 Aug. 21	July 14 June 30 Aug. 13	52 48 38		1911 1912 Average. Earligest. Latest	May 4 Apr. 24 Apr. 24 Apr. 5 May 14	11 18 11 5 30	May 15 May 12 May 5 Apr. 20 May 21				Aug. 12 Aug. 30 Aug. 28 Aug. 6 Sept. 20	89 110 115 89 137	60 75 64	Good.
			BEE'	rs (Early l	Blood Tu	rnip).					<del></del>		EARLY	RA)	DISH.			·	,
1890	Apr. 21 Apr. 24 May 14 Apr. 21 Apr. 28 Apr. 23 Apr. 13 Apr. 24	9 15 9 12 9 16 12 9	Apr. 30 May 9 May 23 May 3 May 7 May 9 Apr. 25 May 3			July 6 June 28 July 6 July 1 June 25 June 5 July 2 July 4	67 50 44 59 49 40 27 68 60 62 70	Poor. Good. Good. Good. Good.	1883 1884 1885 1886 1887 1888 1899	May 14 Apr. 21 Apr. 30 Apr. 23 Apr. 13 Apr. 24	6 7 6 8 8 13	Apr. 28 May 6 May 1 Apr. 21 May 7				June 21 May 25 May 30 May 29 May 16 June 1	32 27 24 28 25 25	45 25 30 50 50	Fair. Good. Fair. Fair. Good.
1894 1895 1896 1897 1898 1899	Apr. 24 Apr. 28 Apr. 28 Apr. 18 Apr. 27 May 6 Apr. 27 Apr. 25 May 1	9 11 16 13 8 8 7 10 7	May 3 May 9 May 14 May 1 May 5 May 21 May 13 May 7 May 2 May 12			July 1 July 25 June 28 June 30 Aug. 5 July 30 July 10 July 12 July 8	59 50 77 35 45 80 60 50 92 40 70 40 57 80 66 67 60	Good. Good. Good. Fair. Good. Good.	1891	Apr. 24 Apr. 28 Apr. 17 Apr. 26 Apr. 27 May 1 May 6 Apr. 27 Apr. 25 May 1	7 6 14 4 8 5 4 7 6	May 1 May 4 May 1 Apr. 30 May 5 May 6 May 10 May 4 May 1 May 7				June 2 May 30 Mny 25 May 18 June 6 May 25 June 4 May 24 May 24	32 26 24 18 32 19 25 20 23	40 50 50 40 30 50 50	Fair. Fair. Good. Good. Fair. Good. Good.
1905 1906 1907 1908 1909	Apr. 21 Apr. 29 Apr. 29 Apr. 29 Apr. 24 May 6 Apr. 23 May 8 Apr. 16	13 16 12 20 12 28	May 12 May 10 May 18 May 13 May 20 May 14			July 15 June 25 July 15 July 2 July 20 Aug. 10	64 80 46 58 90 50 80 61 85 88 90	Good. Good. Good. Good. Good.	1903	Apr. 22 Apr. 22 Apr. 3 Apr. 13 May 6 Apr. 24 May 1 Apr. 16	8 6 7 12 9 16	Apr. 11 Apr. 19 May 13 May 6 May 10 May 2				June 1 May 25 June 13 May 28 June 4 June 5	51 36 31 22 25 34	40 50 40 70	Good. Good. Good. Good.
Aver-	May 4 Apr. 24 Apr. 27 Apr. 13 May 14	10 13 13	May 14 May 7			July 12 June 29 July 8 June 5 Aug. 10	59 75 53 75 59 66 27 92	Good. Good.	1911 1912 Average. Earliest. Latest	Apr. 22 Apr. 24 Apr. 25 Apr. 3 May 14	7 12 8 4	Apr. 29 May 6 May 3 Apr. 11				May 18 May 30 May 30 May 16 June 21	19 24 27 18 51	70 40 47	Good. Fair.

Table 2.—Phenological observations at Wauseon, Ohio, on 20 different field and garden crops, 1883 to 1912, inclusive—Continued.

													····		1000 (0.		·				
Year.	Planted.	Days from 1 to 8.	Above ground.	In blossom.	Days from 4 to 6.	Ripe.	Ready for use.	Days from 3 to 7.	Per cent of a good crop.	Quality of crop.	Year.	Planted.	Days from 1 to 8.	Above ground.	In blossom.	Days from 4 to 6.	Ripe.	Ready for use.	Days from 8 to 7.	Per cent of a good crop.	Quality of crop.
	1	2	8	4	5	6	7	8	9	10	,	1	2,"	8	4	5	6	7	8	9	10
-				TOL	IAT	0.							<u>!!</u>	!	SWEET	CO	RN.		1 . , , , ,	!!	
1883						•					1883					<u> </u>			1		
1884 1885 1886 1887 1888 1890	Apr. 24 May 14 Apr. 20 Apr. 30 May 2 Apr. 27 May 16	10 8 11 10 9 14 9	May 4 May 22 May 1 May 10 May 11 May 11 May 25	July 3 July 14 July 3 June 30 July 21 July 18 July 14	37 30 55 35 45 46	Aug. 16 Aug. 20 Aug. 2 Aug. 4 Aug. 25 Sept. 1 Aug. 29	Aug. 16 Aug. 20 Aug. 2 Aug. 4 Aug. 25 Sept. 1 Aug. 29	104 90 93 86 106 113 96	40 80 80 40 80	Good. Good. Good. Good. Good.	1884 1885 1886 1887 1888 1890	May 14 May 11 May 21 May 22 May 18 June 3	11 11 12 10 20 7	May 25 May 22 June 2 June 1 June 7 June 10	July 23 July 15 July 22 Aug. 2 Aug. 4 Aug. 2	57 57 34 44 42 49	Sept. 18 Sept. 10 Aug. 25 Sept. 15 Sept. 15 Sept. 20	Aug. 13 Aug. 16 Aug. 10 Aug. 20 Aug. 28 Aug. 20	80 86 69 80 82 71	85 90 70 90 40	Good. Good. Fair. Good. Fair.
1891 1892 1893 1894 1895 1896 1898 1899 1900	Apr. 25 Apr. 28 Apr. 17 Apr. 18 Apr. 27 May 1 May 6 Apr. 27 Apr. 25 May 1	16 11 27 17 9 7 6 13 7	May 11 May 9 May 14 May 5 May 6 May 8 May 12 May 10 May 2 May 16	July 1 July 14 July 13 June 25 July 6 June 24 July 7 July 2 July 12	51 48 33 42 50 40 50 50 29	Aug. 16 Sept. 1 Aug. 15 Aug. 25 Aug. 25 Aug. 26 Aug. 21 Aug. 10	Aug. 16 Sept. 1 Aug. 15 Aug. 6 Aug. 25 Aug. 26 Aug. 26 Aug. 21 Aug. 10	97 115 93 93 111 92 106 103 100	70 90 100 70 70 100 90	Good. Good. Good. Good. Good. Good. Good.	1891 1892 1893 1894 1895 1896 1897 1898 1899	May 8  May 20  Apr. 18  May 28  May 1  June 10  May 24  May 10  May 1	12 18 5 8 7 7 8 13	June 1 May 6 June 2 May 9 June 17 May 31 May 18 May 14	Aug. 4 July 24 July 18 Aug. 1 July 11 Aug. 14 July 30 July 23	35 43 50 48 42 47 38	Aug. 28 Aug. 30 Sept. 20 Aug. 28 Sept. 25 Sept. 15 Aug. 30	Aug. 12 Aug. 12 Aug. 12 July 30 Sept. 5 Aug. 23 Aug. 4	90 72 98 71 85 77 84 78	60 25 10 35 75 50 65	Fair. Poor. Fair. Good. Poor.
1901 1902 1903 1904 1905 1906 1907 1909 1910	Apr. 15  May 5 Apr. 27 May 11 May 6 Apr. 23 May 1 Apr. 11	15 9 15 14 23 17 24	May 20 May 6 May 26 May 20 May 10 May 18 May 18	July 20 July 5 June 25 July 25 June 7 July 12 Aug. 2	47 38 41 43 35 28	Sept. 5 Aug. 12 Sept. 4 July 20 Aug. 16 Aug. 30	Sept. 5 Aug. 12 Sept. 4 July 20 Aug. 16 Aug. 30	98 98 107 65 90 117	60 55 75 80 90 75	Good. Good. Good. Good. Good. Good.	1901 1902 1903 1904 1905 1906 1907 1908 1909	May 9  June 2 May 10	6	May 15 June 8 May 18	July 5 Aug. 1 July 26	62 50 56	Sept. 5 Sept. 20 Sept. 20 Aug. 12	July 24 Aug. 22 Aug. 16	70 75 90	80 40 80	Good. Good.
1911 1912 Aver-	May 4 May 4 Apr. 28	12 8 14	May 16 May 12 May 12	June 30 July 9 July 8	46 46 41	Aug. 15 Aug. 24 Aug. 18	Aug. 15 Aug. 24 Aug. 18	91 104 98	100 100 78	Good. Good.	1911 1912 Aver-	May 9 May 2 May 15	7 13 10	May 16 May 15 May 25	July 22 July 9 July 25	50 52 46	Sept. 10 Aug. 30 Sept. 9	Aug. 16 July 30 Aug. 15	92 76 82	70 70 61	Good. Good.
age. Ear- liest. Latest	Apr. 11	6 27	May 1 May 26	June 7 Aug. 2	28 51	July 20 Sept. 5		65 117			age. E a r - liest. Latest	Apr. 18	5	May 14 June 17	July 5 Aug. 14	34 62	Aug. 12 Sept. 25	July 24 Sept. 5			
***************************************	·			cuci	JMI	BER.				AT ATT ATT ATT ATT ATT ATT ATT ATT ATT					SOR	ЗHI	JM.		·		
1883	May 24 May 14 May 21 Apr. 23 May 16 May 16	8 8 7 17 11 13	June 1 May 22 May 28 May 10 May 27 May 29	July 17 July 3 July 7 July 1 July 9 June 28	40 48 39 66 64 79	Aug. 25 Aug. 20 Aug. 15 Sept. 5 Sept. 12 Sept. 15	July 18 July 15 July 16 July 16 July 18 July 18 July 10	47 54 49 67 52 42	50 25 40 80 50	Fair. Poor. Poor. Good. Fair.	1883 1884 1885 1886 1887 1888 1889	May 19 May 22 May 18	7 21	May 26 May 29 June 8	Aug. 16 Aug. 14 Sept. 3	31 17	Sept. 25 Sept. 14 Sept. 20	Sept. 25 Sept. 14 Sept. 20	122 108 104	90	Good.
1891 1892 1893 1894 1895 1896 1897 1898	May 19	16	June 4	July 12	45	Aug. 26				Good.	1896 1897 1898 1899	Apr. 30	14 10 8	May 23 May 22 May 8 June 10		38	Sept. 18 Sept. 1 Sept. 5 Sept. 20	Sept. 18 Sept. 1 Sept. 5 Sept. 20	102	80	Good. Good. Good.
1900 1901 1902 1903 1904 1905 1907 1908 1909											1902 1903 1904 1905 1906 1907 1908										
1911 1912 Average. Ear- liest.	May 19 May 15	8 11	May 27 May 26 May 10	July 5	56 56	Aug. 30 Aug. 30 Aug. 15 Sept. 15	July 15 July 15 July 10	50	70 52	Good.	1911 1912 Aver- age. E a r- liest.		11	May 27 May 8	Aug. 14 July 29	32	Sept. 15 Sept. 1		111		

Table 2.—Phenological observations at Wauseon, Ohio, on 20 different field and garden crops, 1883 to 1912, inclusive—Concluded.

_	IAB	JE 4	-1 116110	iogicai o	J861 (		· maaseo	n, O1	,	on 20 arj	erent j		- u	en crops,	1000 10 .	1312	,		ıuuc	.u.,	
Year.	Planted.	Days from 1 to 3.	Above ground.	In blossom.	Days from 4 to 6.	Ripe.	Ready for use.		Fer cent of a good crop.	Quality of crop.	Year.	Planted.	Days from 1 to 3.	Above ground.	In blossom.	Days from 4 to 6.	Ripe.	Ready for use.		Per cent of a good crop.	Quality of crop.
	1	2	8	4	5	6	7	8	9	10		1	2	8	4	5 ****	6	7	8	9	10
	·		*	PUM	/PE	IN.	<u></u>		1				,	<u>'                                     </u>	CL	OVI	GR.	'			
1883 1884 1885 1886 1886 1889 1890 1890 1890 1893 1894 1895 1896 1896 1896 1896 1900 1901 1903 1904 1906 1906 1909 1909 1910 1911 1912 A ver	May 24	8 8 8 19 13 10 7 7	June 9 May 27 May 18	July 14  July 20  July 10  July 8  July 5  July 4  July 18  July 12  July 21  July 12  June 30	62 47 43 78 45 39 60	Aug. 25 Sept. 10	Aug. 25 Sept. 10	77	90 50 25 75 75	Good. Failure. Fair. Good. Good. Failure. Foor. Good.	1891 1892 1893 1894 1895 1896 1897 1898 1900 1901 1902 1903 1904 1905 1906 1907 1908 1909 190				May 31 June 4 June 5 May 30 May 30 May 30 June 1 June 1 June 4 May 28 May 26  May 30	81 81 92 80 110 105 73 89 117 118	July 25 Aug. 12 Sept. 2 Aug. 30 Aug. 30 Sept. 20 Sept. 10 Aug. 25 Aug. 30 Aug. 25 Aug. 30 Aug. 30 Sept. 10 Aug. 25 Aug. 30 Sept. 25 Sept. 10	June 30 June 28 June 27 June 17 June 15 June 26 June 23 June 20 June 24 June 20 June 18 June 10 June 18 June 20 June 18 June 20 June 22 June 22 June 24	19 16 16 18 12 13 16 17 20 20 15 19 16 21 11 16 21 21 21 33 32 25 31	85 90 60 80 10 65 75 60 80 80 80 80 80 80 80 80 80 80 80 80 80	Good. Fair. Good. Good. Fair. Good.
Earli. Lates	May 10 May 18 May 1 June 5	10	May 28 May 11 June 12	July 12 June 30 July 21	56	Sept. 6 Aug. 20 Sept. 20	Sept. 6 Aug. 20 Sept. 20	101	69 		age. Earli- est.				June 4 May 24 June 15	87 44 118	Aug. 30 July 25 Sept. 25	June 23 June 10 July 5	19 12 33	68	,
				SQ	ŪΑ	SH.									TIN	тот	ну.				
1883 1884 1885 1886 1887 1888 1880 1890	May 19 May 12 June 4 May 21	10	June 4 May 24 June 12 May 31 June 13	July 18 July 8 July 19 None	45 64 63		Sept. 1 Sept. 10 Sept. 20	89 109 112	85 25	Good. Failure. Fair. Failure.	1883 1884 1885 1886 1887 1888 1889				July 1 June 28 June 30 June 20 June 20 June 22 June 28 June 24	29 17 24 30 28 42 43 38	July 30 July 15 July 24 July 20 July 18 Aug. 2 Aug. 10 Aug. 1	July 23 July 3 July 8 July 5 July 5 July 6 July 16 July 6	22 5 8 15 15 14 18 12	60 80 75 90 75	Good. Good. Good. Good. Good.
1891 1892 1893 1894 1895 1896 1897 1898 1890	May 15	7	June 2 June 10	July 20	47	Sept. 25	Sept. 10	100	50	Poor.	1893 1894 1895 1896 1897 1898				June 22 June 22 June 24 June 19 June 18 June 15 June 23 June 18 June 18 June 24	28 33 34 32 48 25 27 28	July 20 July 25 July 28 July 21 Aug. 5 July 10 July 20 July 14 July 8	July 7 July 14 July 7 July 2 July 5 June 29 July 8 July 6 June 27	15 22 13 13 17 14 15 20 9	80 90 80 70 80 90 90	Good. Good. Good. Good. Fair. Good. Good.
1901 1902 1903 1904 1905 1906 1907 1908 1909											1901. 1902. 1903. 1904. 1905. 1906. 1907. 1908.			<u> </u>	June 24	60 41 33	July 25 Aug. 15 Aug. 12 July 25 July 30	July 10 July 6 July 15 July 15 July 8 July 11 July 11	12 29 13 16 21	80 90	Good. Good. Good. Good. Good.
1911 1912	May 5	12	May 18 June 3 May 18 June 13	June 25	ļ	Sept. 18 Sept. 14 Sept. 1 Sept. 25			75 59	Good.	1910.				June 26 June 19 June 22 June 23 June 15 July 2	26 30 32 17	July 15 July 25 July 25 July 8 Aug. 15	July 4 July 8 July 9 June 27	15 15 17 16 5 29	60 60 79	Good. Good. Good.

TABLE 3.—Phenological observations at Wauseon, Ohio, on 48 different forest trees, shrubs, and vines, 1883 to 1912, inclusive.

[The numbers following the common names refer to the numbers of the list on pp. 26 to 28.]

Year.	Buds start.	First fully formed leaf.	In full leaf.	In blos- som.	Fruit ripe.	Complete change of foliage.	Divested of leaves.	Seeds, plentiful or scant.	Buds start.	First fully formed leaf.	In full leaf.	In blos- som.	Fruit ripe.	Complete change of foliage.	Divested of leaves.	Seeds, plentiful or scant.
	1	2	8	4	5	6	7	8	1	2	3	4	5	6	7	8
<del></del>			BL	ACK WA	LNUT	(600).	·	<u>'</u>			SHELI	BARK	HICKOR	RY (603).	•	
1883 1884 1885 1886 1887 1888 1889	May 12 May 6 May 19 Apr. 28 May 12 May 12 Apr. 30 May 5	May 27 May 22 May 28 May 9 May 20 May 26 May 11 May 18	June 7 June 6 June 11 May 19 May 30 June 12 May 22 June 4	June 26 June 8 May 29 May 26 June 13 May 27 June 7	Sept. 22 Oct. 1 Oct. 6 Sept. 20 Oct. 1	Sept. 18 Oct. 9 Oct. 5 Sept. 20 Sept. 30 Sept. 22 Oct. 2	Oct. 22 Oct. 17 Oct. 23 Oct. 14 Oct. 1 Oct. 12 Oct. 5 Oct. 10	Full	Apr. 30 May 7 May 13 Apr. 24 May 10 May 9 May 4 Apr. 30	May 18 May 16 May 20 May 3 May 16 May 20 May 9 May 16	May 26 May 22 May 25 May 16 May 25 May 28 May 13 May 26	May 30 May 22 May 24 May 11 May 18 May 26 May 22 June 1	Sept. 20 Oct. 1 Sept. 30 Sept. 30 Oct. 1	Cont Of	Oct. 28 Nov. 8 Oct. 19 Oct. 15 Oct. 25 Oct. 18 Oct. 9 Oct. 13	Full. Scant. Full. Scant. Full.
1899 1900	May 6 Apr. 28	May 10	May 25 June 12 June 8 May 28 May 24 May 18 May 27 May 30 May 20	June 6 June 15 June 16 May 26 May 18 May 14 May 26 June 1 June 2	Oct. 5 Oct. 5 Oct. 2 Sept. 30 Sept. 30 Oct. 5 Oct. 2	Oct. 7 Oct. 2 Oct. 10 Sept. 26 Oct. 11 Sept. 24 Sept. 30	Oct. 15 Oct. 16 Oct. 17 Oct. 16 Oct. 18 Oct. 2 Oct. 6	Full Full Full Full Scant Full.	Apr. 30 May 10 May 11 May 3 May 2 Apr. 25 May 7 May 11 Apr. 25	May 9 May 19 May 19 May 10 May 8 May 1 May 15 May 19 Apr. 30	May 12 May 10 May 23 May 27 May 10	May 28 May 18 May 23	Oct. 5 Oct. 1 Oct. 2 Sept. 25 Oct. 2 Sept. 25 Oct. 1	Oct. 7 Oct. 6 Oct. 5 Sept. 26 Oct. 11 Sept. 27 Sept. 24		Full. Scant. Full. Scant. Full. Scant. Full. Scant.
1901 1902 1903 1904 1905 1906 1907 1908 1909		May 22 May 22 June 2 May 20	June 10 May 30 June 15	May 23 June 14	Sept. 30	Sept. 22 Sept. 27	Oct. 22 Oct. 5			May 18 May 18 June 3 May 18	June 1 May 28 June 16	May 16 May 13 May 25	Sept. 30	Sept. 30 Sept. 27	Oct. 28	
1911 1912	May 6	May 18 May 19 May 8 June 2	May 25 June 1 May 18 June 15	May 26 June 2 May 14 June 16	Sept. 30 Oct. 1 Sept. 20 Oct. 6	Oct. 8 Sept. 30 Sept. 18 Oct. 11	Oct. 14 Oct. 13 Oct. 1 Oct. 23	Full		May 13 May 15 Apr. 30 June 3	May 28 May 23 May 10 June 16	May 26 May 21 May 11 June 1	Oct. 1 Sept. 29 Sept. 20 Oct. 5	Nov. 5 Oct. 3 Sept. 24 Nov. 5	Nov. 10 Oct. 20 Oct. 3 Nov. 10	Scant.
*			Pl	G HICE	CORY (6	607).					QU.	KING .	ASPEN	(615).	·	
1883 1884 1885 1886 1887 1888 1889	May 10 May 6 May 15 Apr. 25 May 11 May 7 May 6 May 4	May 20 May 12 May 21 May 4 May 17 May 20 May 9 May 22	May 27 May 21 May 25 May 20 May 26 May 27 May 12 May 30	May 26 May 9 May 16 May 26 May 17 June 4	Oct. 5	Sept. 24 Oct. 15 Sept. 25 Oct. 12 Oct. 8 Oct. 10	Nov. 1 Nov. 3 Oct. 18 Oct. 20 Oct. 30 Oct. 30 Oct. 9 Oct. 13	Full	Apr. 26 Apr. 16 Apr. 20 Apr. 17 Apr. 26 Apr. 30 Apr. 20 Apr. 21	May 1 Apr. 27 May 7 Apr. 21 May 3 May 12 Apr. 26 Apr. 27	May 5 May 8 May 16 Apr. 26 May 10 May 20 May 5 May 7	Apr. 14 Apr. 10 Apr. 20 Apr. 21 Apr. 11 Apr. 13 Apr. 3 Apr. 14	May 2 May 10 May 25 May 10 May 22	Sept. 29 Oct. 30 Oct. 10 Oct. 27 Oct. 24 Oct. 24	Oct. 20 Nov. 8 Nov. 7 Nov. 13 Nov. 8 Nov. 3 Oct. 30 Nov. 11	Full. Full. Full. Full.
	Apr. 30 May 17 May 15 May 7 May 4 Apr. 28 May 7 May 11 Apr. 29	May 11 May 24 May 25 May 14 May 10 May 3 May 14 May 20 May 4	May 19 June 3 June 6 May 26 May 10 May 24 May 27 May 15	May 15 June 1 June 1 May 17 May 15 May 12 May 23 May 25 May 23	Oct. 10 Oct. 1 Oct. 5 Sept. 25 Oct. 12 Sept. 25 Oct. 10	Oct. 7 Oct. 6 Oct. 12 Sept. 27 Oct. 11 Sept. 24 Sept. 24	Nov. 10 Oct. 24 Nov. 8 Oct. 20 Nov. 1 Oct. 14 Oct. 20	Full Scant Full Scant Full Scant Full Scant Full Scant Full Full Full Full Full Full Full Ful	Apr. 20 Apr. 28 Apr. 17 Apr. 17 Apr. 18 Apr. 15 Apr. 26	Apr. 27 May 2 May 8 Apr. 26 Apr. 25 Apr. 20 May 3	May 8 May 14 May 20 May 5 May 8 Apr. 28 May 10 May 8 May 2	Apr. 14 Mar. 30 Apr. 7 Mar. 18 Apr. 6 Apr. 12 Apr. 16 Mar. 26 Apr. 21 Apr. 15	11000	Oct. 13 Oct. 12 Oct. 16 Oct. 15 Oct. 22 Oct. 6 Oct. 8		Scant. Full. Scant. Scant. Full. Full. None.
1904 1905 1906 1907 1908		May 18 May 16 June 1 May 20	June 1 May 26 June 15	May 12 May 26	Sept. 30	Sept. 28 Oct. 12	Oct. 30			May 4 Apr. 23 May 3 May 3 May 10	May 13 May 4 May 20 May 18 May 22	Apr. 12 Apr. 19 Apr. 23 Apr. 8 Apr. 15 Apr. 6	May 4		Oct. 30 Oct. 28	
Average Earliest	May 8 May 7 Apr. 25 May 17		1			Nov. 4 Oct. 6 Sept. 24	Nov. 9	Scant	May 6	May 12	May 24  May 10  Apr. 26  May 24	Apr. 18 Apr. 11 Mar. 18 Apr. 23	May 14  May 12  May 2  May 30	Oct. 16	Nov. 2 Oct. 20	Full.

TABLE 3.—Phenological observations at Wauseon, Ohio, on 48 different forest trees, shrubs, and vines, 1888 to 1912, inclusive—Continued.

[The numbers following the common names refer to the numbers of the list on pp. 26 to 28.]

		1	· · · · · · · · · · · · · · · · · · ·	1 0				sines rejer to	· · · · · ·	1				ı		
Year.	Buds start.	First fully formed leaf.	In full leaf.	In blos- som,	Fruit ripe.	Complete change of foliage.	Divested of leaves.	Seeds, plentiful or scant.	Buds start.	First fully formed leaf.	In full leaf.	In blos- som.	Fruit ripe.	Complete change of foliage.	Divested of leaves.	Seeds, plentiful or scant.
	1	2	8	4	5	6	7	8	1	2	8	4	. 2	6	7	8
-		·	CC	VIOUL	700D (	617).					BL	ACK WI	LLOW (	(618).		
1890	Apr. 25 Apr. 29 Apr. 24 Apr. 22 May 9 May 3 May 8 May 12		May 15 May 15 May 23 May 10 May 25 May 25 May 16 May 30	Apr. 11 Apr. 28 Apr. 26 Apr. 19 Apr. 27 May 3 Apr. 24 May 7	May 25 May 28 June 12 June 3 June 4	Oct. 5 Sept. 16 Sept. 30 Oct. 10 Oct. 10 Sept. 28 Oct. 8 Oct. 24	Oct. 25 Oct. 26 Oct. 22 Oct. 24 Oct. 20 Oct. 13 Oct. 12 Oct. 30	Full Full Scant Full	Apr. 22 Apr. 28 Apr. 22 Apr. 12 Apr. 15 Apr. 23 Apr. 19 Apr. 14	May 3 May 6 May 7 Apr. 20 May 8 May 2 May 3 Apr. 29	May 15 May 18 May 19 Apr. 30 May 13 May 12 May 12 May 12	May 7 May 16 May 17 Apr. 30 May 10 May 15 May 7 May 8	May 21 May 22 June 5 May 21 May 30	Sept. 28 Sept. 24 Oct. 9 Oct. 22 Sept. 25 Oct. 10 Oct. 8 Oct. 24	Oct. 20 Oct. 30 Nov. 7 Nov. 7 Oct. 25 Oct. 30 Oct. 12 Nov. 6	Full, Full, Full, Full, Full,
	Apr. 25 May 1 May 3 Apr. 27 May 1 Apr. 19 Apr. 30 May 1 Apr. 27	Apr. 30 May 6 May 14 May 7 Apr. 22 May 7 May 7 May 7 May 2	May 16 May 18 May 20 May 12 May 14 May 1 May 14 May 15 May 9	Apr. 30 May 16 Apr. 26 Apr. 25 Apr. 25 Apr. 24 Apr. 29 Apr. 20 Apr. 25 May 7	June 8 None None None May 30 None June 12 None May 26	Oct. 13 Oct. 15 Oct. 17 Oct. 15 Oct. 22 Oct. 1 Oct. 18	Oct. 31 Oct. 22 Nov. 5 Nov. 5 Oct. 30 Oct. 13 Nov. 10	Scant. None. None None Full. None. Full None.	Apr. 20 Apr. 27 Apr. 14 Apr. 18 Apr. 21 Apr. 14 Apr. 22 Apr. 14 Apr. 22	Apr. 27 May 2 May 6 May 2 Apr. 30 Apr. 19 Apr. 30 Apr. 22 Apr. 29	May 10 May 14 May 15 May 15 May 8 Apr. 25 May 7 May 3 May 8	May 1 May 12 May 12 May 13 May 2 Apr. 25 May 14 May 11 May 1 May 1	May 20 June 10 June 4 June 1 May 28 May 14 June 5 June 2 May 22	Oct. 23 Oct. 30 Oct. 17 Oct. 15 Oct. 11 Oct. 6 Oct. 2	Nov. 6 Nov. 14 Nov. 16 Oct. 30 Oct. 24 Oct. 20	Full. Full. Scant. Scant. Full. Full. Full.
1901 1902 1903 1904 1905 1906 1907 1908				Apr. 28 Apr. 26 May 10 Apr. 20	May 13 June 23	Sept. 30 Oct. 19 Oct. 22	Oct. 28			May 5 Apr. 24 May 10 May 16				Sept. 30* Sept. 27 Nov. 2	Oct. 18	
1912	Apr. 26 Apr. 30 Apr. 17 May 12			Apr. 25	June 10 June 3 May 13		Nov. 6	Full	Apr. 27	May 3	!	May 8	June 8	Oct. 11	Nov. 6 Oct. 29 Oct. 12 Nov. 16	Full.
100	,		1	RONWO	OOD (64	4).					COI	MMON	HAZEL	(645).		
1883 1884 1885 1886 1887 1888 1889 1890	Apr. 30 Apr. 22 Apr. 20 Apr. 19 Apr. 26 Apr. 28 Apr. 19 Apr. 22	May 3 Apr. 30 Apr. 28 May 3 May 6 May 6 Apr. 30	May 15 May 18 May 22 May 6 May 12 May 18 May 9 May 12	May 8 May 5 May 3 May 10 May 7 May 1 May 4	Aug. 13 Aug. 30 Sept. 1 Sept. 10 Aug. 20	Oct. 8 Sept. 22 Oct. 1 Oct. 20 Sept. 25 Oct. 2 Oct. 8 Oct. 10	Nov. 1 Nov. 6 Oct. 20 Oct. 24 Oct. 20 Oct. 30 Oct. 10 Oct. 25	Scant Full Scant Scant Scant	Apr. 28 Apr. 28 Apr. 28 Apr. 20 Apr. 26 Apr. 30 Apr. 26 Apr. 23	May 9 May 6 May 12 Apr. 24 May 6 May 8 May 8 Apr. 30	May 15 May 13 May 23 Apr. 30 May 15 May 18 May 12 May 10	Apr. 18 Apr. 17 Apr. 20 Apr. 9 Apr. 18 Apr. 23 Apr. 28 Apr. 15	Sept. 15 Sept. 20 Sept. 25 Oct. 2 Sept. 25	Oct. 15 Sept. 22 Sept. 28 Oct. 20 Sept. 25 Oct. 12 Oct. 8 Oct. 3	Nov. 1 Nov. 1 Oct. 23 Oct. 31 Oct. 10 Oct. 30 Oct. 10 Oct. 26	Full. Full. Scant. Scant. Scant.
1891 1892 1893 1894 1895 1896 1897 1898	Apr. 21 Apr. 28 Apr. 27 Apr. 25 Apr. 18 Apr. 20 Apr. 24 May 3 Apr. 26	April 30 May 10 May 14 May 3 Apr. 28 Apr. 29 May 3	May 13 May 23 May 26 May 12 May 12 May 3 May 14	May 3 May 14 May 21 Apr. 28 May 3 Apr. 30 None	Aug. 10 Aug. 20 Sept. 15 Sept. 5 Sept. 20 None	Sept. 28 Oct. 11 Oct. 17 Oct. 5 Oct. 2 Sept. 24 Sept. 30	Oct. 15 Oct. 28 Oct. 30 Oct. 17 Oct. 15 Oct. 8 Oct. 15	Full	Apr. 20 Apr. 26 Apr. 14 Apr. 16 Apr. 24 Apr. 16 Apr. 26 Apr. 27 Apr. 25	Apr. 30 May 6 May 8 Apr. 28 May 2 Apr. 24	May 12 May 17 May 20 May 9 May 9	Apr. 13 Apr. 14 Apr. 7 Mar. 24 Apr. 18 Apr. 14 Apr. 18	Sept. 9 Sept. 10 Oct. 1 Sept. 25 Oct. 5 Sept. 20 Sept. 30	Oct. 6 Oct. 18 Oct. 10 Oct. 5 Oct. 11 Sept. 24 Sept. 30	Oct. 20 Nov. 4	Scant.
1901 1902 1903 1904 1905 1906 1907 1908		May 3 May 13 May 18	May 10 May 24 May 25 May 20 May 22	1		Sept. 25				May 4 May 10 May 20 May 14 May 15	May 13 May 22 May 26 May 20 May 25	Apr. 13 Apr. 11 Apr. 20 Apr. 10		Sept. 30 Sept. 27	Oct. 18	
Average Earliest Latest	May 1 Apr. 24 Apr. 18 May 3	May 11 May 5 Apr. 28 May 18	May 22 May 15 May 3 May 26	May 7 Apr. 28 May 21	Aug. 30 Aug. 10	Oct. 3 Sept. 22	Oct. 21 Oct. 8		Apr. 24 Apr. 14	May 5	May 15 Apr. 30 May 26	Apr. 15 Mar. 24	Sept. 25 Sept. 9	Oct. 5 Sept. 22	Oct. 4	

TABLE 3.—Phenological observations at Wauseon, Ohio, on 48 different forest trees, shrubs and vines, 1883 to 1912, inclusive—Continued.

[The numbers following the common names refer to the numbers of the list on pp. 26 to 28.]

Year.	Buds start.	First fully formed leaf.	In full leaf.	In blossom.	Fruit ripe.	Complete change of foliage.	Divested of leaves.	Seeds, plentiful or scant.	Buds start.	First fully formed leaf.	In full leaf.	In blos- som.	Fruit ripe.	Complete change of foliage.	Divested of leaves.	Seeds, plentiful or scant.
	1	2	8	. 4	5	6	7	8	1	2	3	4	5	6	7	8
<del></del>			.1	BLACK	OAK (66	60).				,	7	VHITE	OAK (66	66).		!
1883 1884 1885 1886 1887 1888 1899	May 13 May 7 May 16 Apr. 24 May 5 May 11 May 8 May 4	May 25 May 14 May 23 May 11 May 15 May 22 May 10 May 18	June 3 May 22 May 29 May 20 May 27 May 29 May 17 May 28	May 26 May 22 May 27 May 2 May 20 May 13 May 10 May 18	Sept. 24 Oct. 1 Oct. 12 Oct. 1 Oct. 8	Oct. 15 Oct. 13 Oct. 2 Oct. 24 Oct. 10 Oct. 20 Oct. 24 Oct. 24	Nov. 5 Nov. 21 Nov. 6 Nov. 7 Oct. 28 Nov. 1 Oct. 30 Nov. 6	Fuli Fuli Fuli Fuli Fuli	May 8 May 6 May 13 Apr. 24 May 10 May 11 May 7 May 6	May 22 May 14 May 22 May 9 May 16 May 25 May 10 May 24	June 5 May 23 May 30 May 17 May 26 June 4 May 16 June 2	May 23 May 25 May 26 May 6 May 20 May 28 May 14 May 27	Sept. 15 Sept. 30 Oct. 8 Sept. 25 Oct. 5	Oet. 18 Oct. 13 Oct. 4 Oct. 23 Oct. 10 Oct. 18 Oct. 24 Oct. 24	Nov. 10 Nov. 20 Nov. 13 Nov. 8 Nov. 1 Nov. 8 Oct. 30 Nov. 10	Full. Full. Full. Full.
1893 1894 1895 1896 1897	May 3 Apr. 25 May 7 May 10 Apr. 27	May 12 May 23 May 24 May 10 May 8 May 2 May 13 May 18 May 5	May 22 June 8 June 6 May 22 May 16 May 25 May 25 May 28 May 14	May 7 May 18 May 31 May 9 May 14 May 7 May 27 May 26 May 20	Oct. 15 Sept. 28 Oct. 2 Sept. 30 Oct. 18 Sept. 25 Oct. 10	Oct. 7 Oct. 18 Oct. 17 Oct. 15 Oct. 22 Oct. 6 Oct. 6	Nov. 5 Nov. 8 Nov. 12 Oct. 30 Nov. 5 Oct. 18 Oct. 18	Full	Apr. 30 May 16 May 13 May, 6 May 6 Apr. 26 May 7	May 8 May 20 May 25 May 14 May 11 May 4 May 12 May 18 May 6	May 22 June 6 June 8 May 27 May 25 May 12 May 23 May 28 May 16	May 9 May 18 May 27 May 11 May 16 May 9 May 26 May 26 May 21	Oct. 5 Sept. 28 Oct. 5 Sept. 30 Oct. 15 Sept. 12 Oct. 5		Nov. 14 Oct. 22 Nov. 17 Oct. 28 Nov. 6 Oct. 24 Oct. 18	Full. Full. Full. Full. Scant. Full.
1904 1905 1906 1907 1908			May 20 May 28 June 16	1	Oct. 6				<b>]</b>	May 20 May 16 June 5 May 20	June 4 May 28 June 18	May 19 May 28	Oct. 5		Nov. 4 Nov. 5	·. ·
1911 1912 Average Earliest Latest	May 6 May 6 Apr. 24 May 16	May 15 May 15 May 2 June 2	May 25 May 26 May 10 June 16	May 11 May 18 May 2 May 31	Oct. 10 Oct. 5 Sept. 24 Oct. 18	Oct. 20 Oct. 14 Oct. 1 Oct. 24	Oct. 28 Nov. 2 Oct. 18 Nov. 21	Full	ľ	May 15 May 17 May 4 June 5	May 26 May 28 May 12 June 18	May 18  May 20  May 6  May 28	Oct. 5 Sept. 30 Sept. 12 Oct. 15	Nov. 4 Oct. 16 Oct. 4 Nov. 4	Nov. 9 Nov. 5 Oct. 18 Nov. 20	Full.
				BUR O.	<b>AK</b> (667)	).					SWAI	ap wh	ITE OA	<b>K</b> (668).		
1884 1885 1886 1887	May 12 Apr. 24	May 18 May 13 May 20 May 8 May 14 May 25 May 9 May 18	June 2 May 22 May 26 May 18 May 25 June 5 May 14 May 30	May 23 May 21 May 23 May 4 May 19 May 26 May 12 May 26	Sept. 28 Sept. 25 Oct. 10 Sept. 30 Oct. 8	Oct. 18 Oct. 1 Oct. 9 Oct. 20 Oct. 15 Oct. 22 Oct. 8 Oct. 24	Nov. 10 Nov. 16 Nov. 6 Nov. 6 Oct. 24 Oct. 30 Oct. 10 Nov. 5	Full. Full. Full. Full. Full.			May 18 May 26 May 29 May 14 May 30	May 5 May 18 May 13 May 10 May 26	Sept. 20 Sept. 28 Oct. 10 Sept. 30 Oct. 8	Oct. 22 Oct. 12 Oct. 20 Oct. 8 Oct. 10	Nov. 4 Oct. 28 Nov. 1 Oct. 12 Oct. 25	Full. Full. Full. Full.
1893 1894 1895 1896 1897 1898	Apr. 30 May 15 May 12 May 5 May 3 Apr. 24 May 8 May 10 Apr. 27	May 12 May 22 May 23 May 14 May 9 May 8 May 14 May 18 May 18	May 23 June 5 June 6 May 25 May 17 May 10 May 28 May 27 May 11	May 7 May 16 May 25 May 12 May 14 May 8 May 26 May 24 May 8		Oct. 8 Oct. 6 Oct. 16 Oct. 15 Oct. 11 Oct. 6 Oct. 2		Full Full Full Full Full Full	May 12 Apr. 30 May 1 Apr. 23 May 8	May 6 May 22 May 21 May 10 May 7 May 1 May 14 May 20 May 3	May 20 June 4 June 5 May 24 May 14 May 9 May 25 May 29 May 12	May 6 May 17 May 25 May 10 May 12 May 7 May 25 May 23 May 8	Oct. 10 Sept. 25 Oct. 2 Sept. 30 Oct. 10 Sept. 13 Oct. 8			Full. Full. Full. Full. Scant. Full.
1901 1902 1903 1904 1905 1906 1907 1908		May 18	May 27 June 14	May 24	Oct. 1	Oct. 5 Sept. 28	Oct. 22 Oct. 10				May 20 May 26	May 13 May 25	Oct. 1	Oct. 1 Sept. 30	Oct. 18 Oct. 20	
1911 1912 Average Earliest				May 18 May 17 May 4 May 26	Oct. 1 Sept. 14	Oct 11	Oct. 28 Oct. 10			May 20 May 14 May 1 June 1	May 23 May 9	May 19 May 15 May 5 May 26	Oct. 6 Oct. 4 Sept. 13 Oct. 10	Oct. 11	Nov. 9 Oct. 25 Oct. 12 Nov. 9	Full.

Table 3.—Phenological observations at Wauseon, Ohio, on 48 different forest trees, shrubs and vines, 1883 to 1912, inclusive—Continued.

[The numbers following the common names refer to the numbers of the list on pp. 26 to 28.]

Year.	Buds start.	First fully formed leaf.	In full leaf.	In blos- som.	Fruit ripe.	Complete change of foliage.	Divested of leaves.	Seeds, plentiful or scant.	Buds start.	First fully formed leaf.	In full leaf.	In blos- som.	Fruit ripe.	Complete change of foliage.	Divested of leaves.	Seeds, plentiful or scant.
	1	2	8	4	5	6	7	8	1	2	8	4	5	6	7	8
			WH	TE ELI	<b>A</b> (672).						osa	AGE OR	ANGE	(678).		
383 384 385 386 387 388	Apr. 17 Apr. 17 Apr. 23 Apr. 16 Apr. 16 Apr. 25 Apr. 21 Apr. 16	May 5 Apr. 29 Apr. 9 Apr. 28 May 4 May 8 May 6 May 2	May 18 May 16 May 19 May 7 May 12 May 18 May 9 May 18	Apr. 19 Apr. 18 Apr. 22 Apr. 19 Apr. 11 Apr. 15 Apr. 12 Apr. 17	May 11 May 18 May 28 May 17 May 20	Oct. 4 Sept. 23 Sept. 27 Oct. 12 Sept. 25 Oct. 10 Sept. 30 Oct. 7	Oct. 25 Nov. 10 Oct. 22 Nov. 3 Nov. 5 Oct. 22 Oct. 18 Oct. 28	Full. Full. Full. Full.	May 7 May 13 Apr. 23 May 9 May 14	June 1 May 16 May 23 May 4 May 14 May 28 May 11 May 26	June 8 May 25 May 30 May 16 May 25 June 12 May 20 June 5	June 9 June 11 June 19 June 20 June 18	Nov. 1 Oct. 10 Oct. 31 Oct. 24 Oct. 8	Oct. 15 Oct. 8 Oct. 9 Nov. 4 Sept. 25 Oct. 30 Oct. 24 Oct. 10	Nov. 4 Nov. 25 Nov. 6 Nov. 11 Nov. 5 Nov. 18 Oct. 28 Nov. 15	Scant. Scant. Scant. Scant. Full.
91 92 93 94 95 96 97 98 99	Apr. 21 Apr. 20 Apr. 16 Apr. 27 Apr. 26 Apr. 19 Apr. 24 Apr. 28 Apr. 26	Apr. 29 May 10 May 10 May 7 May 5 Apr. 24 May 2 May 6 May 1	May 11 May 20 May 20 May 13 May 10 Apr. 30 May 10 May 16 May 6	Apr. 15 Apr. 11 Apr. 7 Mar. 20 Apr. 19 Apr. 14 Apr. 20 Mar. 28 Apr. 21 Apr. 16	35. 40	O-4 P	0.1	Full Full. Full None. Full. Full None.	Apr. 30 May 12 May 18 May 2 May 2 Apr. 22 May 12 May 6 May 1	May 10 May 26 May 30 May 14 May 9 May 4 May 19 May 17 May 8	May 30 June 8 June 10 May 26 May 19 May 16 June 3 May 27 May 20	June 20 None June 25 June 23 June 24 None None	Oct. 10 None Oct. 5 Oct. 10 Oct. 10 None None		Nov. 10 Nov. 15 Nov. 22 Oct. 28 Nov. 3 Nov. 5 Nov. 8	Full. None. Full. Scant. Full. None. None.
901 902 903 904 905 908 907 908		May 12 May 4 May 10 May 18 May 14 May 8		Apr. 12 	May 6 May 20	Oct. 24 Oct. 18 Oct. 16 Oct. 19 Oct. 5	Nov. 8 Oct. 28 Oct. 30 Oct. 25			May 20 May 21 June 1	June 8 May 29 June 15				Oct. 15	
912	Apr. 23 Apr. 21 Apr. 16 Apr. 28	Apr. 28	May 18 May 16 Apr. 30 June 1	Mar. 25  Apr. 25  Apr. 13  Mar. 20  Apr. 24	May 14  May 17  May 17  May 3  May 30	Oct. 25 Oct. 11 Oct. 8 Sept. 23 Oct. 24	Nov. 10  Nov. 11  Oct. 28  Oct. 17  Nov. 11	Full.	May 20	May 28		June 19 June 9	Oct. 16 Oct. 5 Nov. 1	Oct. 17 Oct. 3	Nov. 8 Oct. 15 Nov. 25	Scant.
			AETTO.	W PARI	<b>LLA</b> (86	8).					S	SASSAF	RAS (86	9).		
883 884 885 886 887 888 889	May 1 May 7 Apr. 20 May 2 May 3 Apr. 24 May 10	May 13 May 18 Apr. 30 May 9 May 20 May 8 May 18	May 24 May 26 May 14 May 16 May 30 May 16 May 27	Luna 26	Sept. 13 Sept. 10 Sept. 25 Sept. 20 Sept. 22	Oct. 2 Sept. 30 Oct. 18 Sept. 25 Sept. 30 Sept. 15 Sept. 25	Nov. 2 Oct. 26 Oct. 30 Oct. 15 Oct. 6 Sept. 30 Oct. 22	Scant Full Scant Scant Scant Scant	May 16 Apr. 21 May 12 May 13	May 24 May 19 May 26 May 10 May 18 May 21 May 10 May 17	June 5 June 1 June 3 May 26 May 30 June 5 May 16 May 30	May 27 June 1 May 29 May 2 May 11 May 16 May 14 May 12	Aug. 24 Sept. 20 Sept. 25 Sept. 5 Aug. 20	Sept. 30 Sept. 30 Oct. 9 Oct. 12 Sept. 25 Oct. 1 Sept. 30 Oct. 2	Oct. 30 Nov. 8 Oct. 29 Oct. 28 Oct. 12 Oct. 18 Oct. 9 Oct. 13	Not full. Full. Full. Full. Full.
891 892 893 894 895 896 897 898 899	Apr. 27 May 8 May 10 Apr. 29 Apr. 27 Apr. 20 Apr. 27 May 5 Apr. 24	May 6 May 17 May 17 May 9 May 5 Apr. 28 May 5 May 11 Apr. 30	May 18 May 23 May 29 May 15 May 14 May 9 May 22 May 26 May 12	June 21 June 14 June 20 June 15 May 30 May 27 June 23 June 16 May 22 June 14	Oct. 5 Sept. 30 Oct. 1 Aug. 20 Aug. 25 Sept. 25 Oct. 1	Oct. 6 Oct. 5 Oct. 5 Sept. 18 Oct. 11 Oct. 2 Oct. 2	Oct. 31 Oct. 8 Oct. 14 Sept. 28 Oct. 18 Oct. 8 Oct. 22	Full Scant Scant Full Scant Scant Scant Scant Scant	Apr. 28 Apr. 30 May 6 Apr. 30 May 4 Apr. 20 May 4 Apr. 27	May 12 May 17 May 22 May 8 May 8 Apr. 27 May 12	May 23 May 28 May 30 May 20 May 25 May 6 May 25 May 20 May 13	May 5 May 14 May 21 May 3 May 18	Aug. 25 Sept. 1 Sept. 10 Sept. 5 None None Aug. 18	Oct. 2 Sept. 26 Oct. 2	Oct. 12	Full. Full. Full. Full. None. None. Full.
901 902 903 904 905 906 907 908		May 6 May 5 May 28 May 16 May 15	May 13 May 18 June 7 May 21 May 25	June 16 June 10do		Oct. 14	Oct. 30			May 12 May 18	May 20 May 28 May 21	May 20 May 13 May 22		Sept. 25		
Verage arliest atest	May 8 Apr. 31 Apr. 20 May 10	May 16 May 11 Apr. 28 May 28	May 26 May 21 May 9 June 7	June 18 June 12 May 22 June 26	Oct. 1 Sept. 20 Aug. 20 Oct. 5	Oct. 20 Oct. 3 Sept. 15 Oct. 20	Oct. 28 Oct. 20 Sept. 28 Nov. 2	Scant	May 2 Apr. 20 May 16	May 14 Apr. 27 May 26	June 4 May 25 May 6 June 5	May 14 Apr. 26 June 1	Sept. 3 Aug. 18 Sept. 25	Oct. 11 Oct. 3 Sept. 25 Oct. 20	Oct. 20 Oct. 17 Oct. 1 Nov. 8	Full.

TABLE 3.—Phenological observations at Wauseon, Ohio, on 48 different forest trees, shrubs and vines, 1883 to 1912, inclusive—Continued.

[The numbers following the common names refer to the numbers of the list on pp. 26 to 28.]

Year.	Buds start.	First fully formed leaf.	In full leaf.	In blossom.	Fruit ripe.	Complete change of foliage.	Divested of leaves.	Seeds, plentiful or scant.	Buds start.	First fully formed leaf.	In full leaf.	In blos- som.	Fruit ripe.	Complete change of foliage.	Divested of leaves.	Seeds plentiful or scant.
	1	2	8	4	5	6	7	8	1	2	8	4	5	6	7	8
				LILA	С			-			W	тсн н	AZEL (	972).		
1889	Apr. 10 Apr. 20 Mar. 20 Apr. 10 Apr. 8 Apr. 15 Apr. 5	Apr. 28 May 3 Apr. 19 Apr. 24 Apr. 28 Apr. 23 Apr. 22	May 15 May 14 Apr. 24 May 8 May 8 Apr. 30 Apr. 30	May 20 May 4 May 11 May 18		Oct. 12 Nov. 1 Oct. 10 Oct. 16	Nov. 5 Nov. 11 Nov. 5 Oct. 25		May 10	May 21 May 3 May 18 Apr. 29 May 3 May 15 May 7 May 11	May 26 May 12 May 24 May 8 May 16 May 25 May 11 May 18	Oct. 8 Oct. 25 Oct. 16 Oct. 9 Oct. 8 Oct. 14 Oct. 1 Oct. 5	Aug. 30 Sept. 10 Sept. 20 Oct. 1 Sept. 15	Oct. 5 Oct. 1 Sept. 28 Oct. 10 Oct. 5 Sept. 30 Sept. 20 Oct. 2	Oct. 20 Oct. 31 Oct. 23 Oct. 25 Oct. 12 Oct. 12 Sept. 30 Oct. 13	Full. Full. Full. Full.
1892 1893 1894 1895 1896 1897 1898 1899	Mar. 18 Apr. 12 Apr. 13 Apr. 8 Mar. 18 Apr. 22	Apr. 23 Apr. 29 Apr. 16 Apr. 19 Apr. 23 Apr. 14 Apr. 25 Apr. 18 Apr. 28	Apr. 29 May 12 May 7 Apr. 30 May 4 Apr. 24 May 6 May 1 May 3	May 6 May 17 May 15 May 2 May 5 Apr. 30 May 12 May 10 May 5 May 12		Oct. 23 Oct. 30 Oct. 6 Oct. 5 Oct. 11 Oct. 12 Sept. 28	Nov. 7 Nov. 14 Oct. 18 Oct. 16 Oct. 22 Oct. 18 Oct. 12		May 13 May 10 Apr. 20 May 4	Apr. 27 May 19 May 16 Apr. 28 May 12	May 3 May 28 May 24 May 10 May 24	Oct. 8 Sept. 30 Sept. 4 Sept. 20 None	Oct. 15 Sept. 15 Aug. 25 Aug. 25 None	Oct. 23 Oct. 1 Oct. 10 Sept. 26 Oct. 11	Nov. 7 Oct. 18 Oct. 22 Oct. 8 Oct. 26	Full. Full. Full. Scant. None.
1901 1902 1903 1904 1905 1906 1907 1908 1909		Apr. 20 Apr. 25 Apr. 30 Apr. 23 May 3 Apr. 5	May 3 May 4 May 15 May 8 May 16 Apr, 15	May 10  May 6 May 7 May 17 May 13 May 18 Apr. 17		Oct. 19 Nov. 8	Oct. 12			May 4	May 14	Oct. 5			Sept. 30	
Average Earliest	Apr. 16 Apr. 7 Mar. 18 Apr. 22	May 4 Apr. 24 Apr. 5 May 4	May 12 May 4 Apr. 15 May 16	May 10 Apr. 17						May 9 Apr. 27 May 21	May 17	Oct. 6	Sept. 7 Aug. 25 Oct. 15	Oct. 4 Sept. 20	Oct. 18 Sept. 30 Nov. 7	
			BUTI	OWNO	<b>OD</b> (974)	).					sv	7AMP R	OSE (1	021).		
1883 1884 1885 1886 1887 1888 1889	May 18 May 10 May 19 Apr. 29 May 8 May 18 May 7 May 13	June 2 May 24 May 26 May 10 May 15 May 26 May 11 May 22	June 20 June 4 June 1 May 31 May 30 June 15 May 22 May 31		Sept. 20 Sept. 30 Oct. 10 None None	Oct. 6 Oct. 10 Oct. 1 Oct. 20 Sept. 25 Oct. 12 Oct. 8 Oct. 8	Nov. 10	Scant Full Scant None	Apr. 26 Apr. 22 Apr. 18 Apr. 22 Apr. 23	May 8 May 8 Apr. 28 May 2 May 1 Apr. 30 Apr. 24	May 18 May 18 May 6 May 14 May 8 May 7 May 2	July 2 July 9 July 4 June 29 July 10 July 9 July 6	Oct. 8 Oct. 10 Oct. 8 Oct. 5 Oct. 20	Oct. 24 Oct. 12 Oct. 24 Oct. 15 Oct. 15 Oct. 8 Oct. 3	Nov. 10 Oct. 31 Nov. 5 Nov. 5 Nov. 5 Oct. 9 Oct. 28	scant. scant. scant. Full. Full.
1898	Apr. 30 May 22 May 18 May 5 May 10 May 14 May 5	May 18	June I		None	Oct. 11 Sept. 22		Scant None None None None	Apr. 24 Apr. 18 Apr. 25 Apr. 28	Apr. 28 May 5 May 5 May 5 May 3 Apr. 25 Apr. 29 May 5 Apr. 27	May 6 May 16 May 16 May 11 May 11 May 2 May 6 May 15 May 5	July 2 July 15 July 6 July 2 May 11 June 20 July 15 July 4 June 27		Oct. 10 Oct. 18 Oct. 17 Oct. 15 Oct. 22 Oct. 20 Oct. 28	l	Full. Full. Scant. Scant. None. Scant. Scant.
1901 1902 1903 1904 1905 1906 1907 1908		May 21	June 10 May 31 June 12			Sept. 27 Oct. 20	Oct. 28			May 1 Apr. 28	May 6 May 10 May 18	July 4 July 1 June 26	Sept. 30	Nov. 5	Oct. 22	
1910 1911 1912 Average Earliest	May 18 May 12 Apr. 29 May 22	May 30 May 22 May 10 June 2			Oct. 1 Sept. 20 Oct. 10		Nov. 9 Oct. 26 Oct. 2					July 4 June 20		Oct. 18 Oct. 3	Oct. 31	

Table 3.—Phenological observations at Wauseon, Ohio, on 48 different forest trees, shrubs and vines, 1883 to 1912, inclusive—Continued.

			,	[The 1	numbers fo	llowing th	e common	names refer	to the num	bers of the	list on pp	. 26 to 28.]				
Year.	Buds start.	First fully formed leaf.	In full leaf.	In blos- som.	Fruit ripe.	Complete change of foliage.	Divested of leaves.	Seeds, plentiful or scant.	Buds start.	First fully formed leaf.	In full leaf.	In blossom.	Fruit ripe.	Complete change of foliage.	Divested of leaves.	Seeds, plentiful or scant.
	1	2	8	4	5	6	7	8	1	2 .	8	4	5	6	7	8
	·	Ι	WARF	WILD R	OSE (1	023).				sc	ARLET	FRUIT	ED TH	<b>)RN</b> (10	41).	
1883 1884 1885 1886 1887 1888 1889 1890	Apr. 26 Apr. 24 Apr. 21 Apr. 24 Apr. 30 Apr. 20 Apr. 23	May 7 May 9 Apr. 29 May 8 May 7 Apr. 30 Apr. 28	May 16 May 19 May 6 May 16 May 14 May 7 May 3	June 24 June 20 June 8 June 3 June 18 June 16 June 13	Sept. 1 Sept. 25 Oct. 2 Sept. 20 Sept. 20	Sept. 19 Oct. 3 Oct. 3 Oct. 15 Oct. 8 Oct. 1	Nov. 1 Nov. 10 Oct. 30 Oct. 28 Oct. 30 Oct. 9	Scant Scant Scant Full Full	Apr. 30 May 3 Apr. 18 Apr. 25 May 3 Apr. 20 Apr. 17	May 9 May 14 Apr. 29 May 8 May 9 May 4 Apr. 24	May 16 May 22 May 9 May 18 May 20 May 9 May 8	May 17 May 23 May 3 May 12 May 23 May 9 May 14	Sept. 21 Sept 25 Sept. 28 Sept. 20 Sept. 28	Sept. 24 Oct. 2 Oct. 10 Oct. 10 Sept. 25 Sept. 30 Oct. 8	Oct. 30 Oct. 20 Oct. 15 Oct. 16 Oct. 10 Oct. 8 Oct. 25	Full. Scant. Scant. Scant. Full.
1891 1892 1893 1894 1895 1896 1897 1898 1899	Apr. 22 Apr. 11 Apr. 19 Apr. 20 Apr. 26 Apr. 17 Apr. 15 Apr. 29 Apr. 26	Apr. 30 May 3 May 7 Apr. 28 May 4 Apr. 22 Apr. 26 May 7 May 3	May 6 May 16 May 8 May 8 Apr. 28 Apr. 30 May 16 May 8	June 17 June 11 June 13 June 13 May 29 May 28 June 19 June 9 June 2 May 30	Sept. 25 Sept. 23 Sept. 20 Sept. 5 Sept. 5 Sept. 20 Sept. 10	Oct. 10 Oct. 23 Oct. 17 Oct. 2 Oct. 22 Oct. 20 Oct. 28	Oct. 31 Nov. 4 Nov. 10 Oct. 16 Nov. 3 Nov. 5 Nov. 10	Full Full Scant Scant Full Full Scant	Apr. 18 Apr. 11 Apr. 17 Apr. 23 Apr. 25 Apr. 15	Apr. 28 May 10 May 12 May 5 May 2 Apr. 22 Apr. 30 May 1 Apr. 30	May 12 May 20 May 23 May 13 May 8 Apr. 28 May 8 May 12 May 6	May 9 May 20 May 23 May 7 May 6 May 2 May 15 May 14 May 3 May 13	Sept. 15 Sept. 10 Sept. 10 Sept. 28 Sept. 10 Sept. 10 Sept. 12			Full. Full. Scant. Full. Full. Full. Full. Full.
1901 1902 1903 1904 1905 1906 1907 1908 1909 1910		May 6 May 2 May 3 May 12	May 18 May 12 May 16 May 24	June 10 June 16 June 8 July 16 June 15			Oct. 30			May 2 May 2 May 12 May 8 May 15 Apr. 15	May 8 May 12 May 17 May 16 May 24	May 17  May 5  May 13  May 18  May 23  May 19  May 3				
Average Earliest Latest		1 A mm 99	May 11 Apr. 28 May 24			Oct. 13 Sept. 19	Oct. 31		May 1 Apr. 22	May 7 May 4 Apr. 15 May 15	May 13 May 13 Apr. 28 May 24	May 14 May 13 May 2 May 23	Sept. 20 Sept. 18 Sept. 10 Sept. 28	Oct. 11 Oct. 5 Sept. 24 Oct. 30	Oct. 21 Oct. 18 Oct. 5 Oct. 30	Full.
_			COFI	EE TR	EE (1060	)).						PRICK	LY ASH	į.		
1883 1884 1885 1886 1887 1888 1889	May 10 May 6 May 18 Apr. 26 May 10 May 23 May 8 May 18	May 7 May 18 May 31 May 13 May 27	June 10 June 6 June 4 May 20 May 28 June 13 May 17 June 4	June 14 June 4 June 8 June 20 June 12 June 10		Sept. 10 Oct. 10 Sept. 25 Oct. 2 Sept. 20	Oct. 20 Oct. 15 Oct. 3 Oct. 13 Oct. 5 Oct. 10 Oct. 4 Oct. 8	None None None None	Apr. 29 Apr. 26 Apr. 25 May 1 Apr. 29	May 18 May 14 May 13 May 6 May 9 May 15 May 6 May 12	May 26 May 25 May 27 May 23 May 24 May 26 May 11 May 22	May 24 May 10 May 13 May 7 May 13 May 9 May 16 May 12	Aug. 13 Sept. 1 Sept. 10 Sept. 25 Oct. 26	Sept. 23 Sept. 26 Sept. 18 Sept. 30	Oct. 25 Oct. 31 Oct. 23 Oct. 23 Sept. 28 Oct. 8 Oct. 9 Oct. 13	Many. Few. Scant. Scant. Scant.
1891 1892 1893 1894 1895 1896 1897 1898 1899	Apr. 30 May 15 May 14 May 2 May 2 Apr. 25 May 8 May 6 Apr. 29	May 23 May 13 May 8 May 2 May 16 May 16 May 6	June 1 June 8 June 8 May 28 June 5 May 10 May 31 May 29 May 18	June 13 June 10 Frozen. May 12 June 4	None None None None	Oct. 1 Sept. 30 Sept. 18 Oct. 2 Oct. 7 Sept. 25	Sept. 30 Oct. 15 Oct. 30 Oct. 7		May 1 Apr. 24 Apr. 30 Apr. 19 Apr. 26	Apr. 28 May 17 May 18 May 10 May 7 Apr. 28 May 6	May 20 May 28 May 29 May 22 May 17 May 10 May 15		Aug. 21 Aug. 18 Sept. 10 None	Sept. 27 Aug. 20 Sept. 18 Sept. 25 Sept. 30	Oct. 5 Oct. 8	Scant. Scant. Scant. Scant. Scant. Scant. None.
1901 1902 1903				June 9	1 '	1	l .					1 *	1		1	
1904 1905 1906 1907 1908 1909 1910		Morr 20	May 31 May 23 June 30	· 10	N	Cont Of	Oat 16	None	•	May 10	May 20 May 18 June 10 May 22	May 17		Oct. 10 Oct. 15	Oct. 18	
1911 1912	·····		1	1	1	I .	t		•	1		1				
Earlies Latest.	May 8 Apr. 25 May 23	May 18 May 2 June 14	May 10	May 12		. Sept. 10	Sept. 30		. Apr. 19	Apr. 28	May 23 May 10 June 10	May 11 Apr. 5 May 24	Sept. 14 Aug. 13 Oct. 26	Aug. 20	Oct. 12 Aug. 27 Oct. 31	

TABLE 3.—Phenological observations at Wauseon, Ohio, on 48 different forest trees, shrubs, and vines, 1883 to 1912, inclusive—Continued.

[The numbers following the common names refer to the numbers of the list on pp. 26 to 28.]

Year.	Buds start.	First fully formed leaf.	In full leaf.	In blossom.	Fruit ripe.	Complete change of foliage.	Divested of leaves.	Seeds, plentiful or scant.	Buds start.	First fully formed leaf.	In full leaf.	In blossom.	Fruit ripe.	Complete change of foliage.	Divested of leaves.	Seeds, plentiful or scant.
	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
		s	TAGHO	RN SU	MAC (1)	184).					P	oison	IVY (118	88).	<u>.</u>	
1883 1884 1885 1886 1887 1888 1899	May 5 May 21 Apr. 23 May 8 May 20 May 1 May 12	May 22 May 26 May 4 May 15 May 27 May 12 May 20	June 3 May 30 May 15 May 25 June 12 May 18 June 3	June 26 June 12 July 2 June 25 June 24 June 25	Aug. 25	Sept. 28 Oct. 6 Sept. 25 Sept. 22 Sept. 23 Sept. 28	Oct. 20 Oct. 27 Oct. 22 Oct. 10 Oct. 10 Sept. 30 Oct. 7	FullFullFullFullFullFullFullFull			May 24 May 27 May 11 May 20 May 28 May 14 May 24	June 22 June 23 June 6 June 12 June 19 June 23 June 12	Sept. 19 Aug. 30 Sept. 20 Sept. 20 Sept. 20 Sept. 10	Sept. 19 Sept. 30 Oct. 1 Sept. 25 Sept. 30 Sept. 28 Sept. 25	Oct. 27 Oct. 26 Oct. 17 Oct. 2 Oct. 10 Oct. 9 Oct. 10	Full. Full. Full. Full. Full.
1899	May 12 May 12 May 2 Apr. 20 May 4 May 8 Apr. 27	May 10 May 18 May 18 May 21 May 7 Apr. 26 May 9 May 14 May 3	May 30 June 1 May 26 May 30 May 25 May 8 May 25 May 24 May 13		Sept. 10 Sept. 10 Sept. 1 Aug. 28 Aug. 25 Sept. 25 None.		Oct. 10 Oct. 18 Oct. 14 Oct. 10 Oct. 11 Oct. 15 Oct. 1	Full Full Full Full Full Full None	May 6 May 2 May 2 Apr. 30 Apr. 20 Apr. 23 May 2 Apr. 27	May 7 Apr. 30 May 4 May 11 May 2	May 25 May 28 May 24 May 13 May 20 May 10 May 17 May 18 May 12	June 20 June 21 June 19 June 17 June 17 June 15 June 16 May 20 May 16				Full. Full. Full. Full. Full. Full.
1901 1902 1903 1904 1905 1906 1907 1908 1909		May 10	May 21			Sept. 30	Oct. 22			May 8 May 18 May 30 May 30 May 23 May 6	May 20 May 26 June 8 May 19	June 16 June 10	Sept. 30	Sept. 20 Oct. 24	Oct. 1	
1911 1912	May 4 Apr. 20	May 13							May 2	May 14	May 21 do May 10 June 8	June 10	Oct. 1	Oct. 10	Oct. 20 Oct. 12 Sept. 30 Oct. 27	Full.
			W	оона	(1195).					•	BIT	TER S	WEET (	1196).	·	
1883 1884 1885 1886 1887 1888 1889	Apr. 23 Apr. 14 Apr. 10 Apr. 5	Apr. 30 May 5 May 10 Apr. 27 Apr. 25 Apr. 30 May 2 Apr. 23		June 11 June 6 June 13 June 20 July 1 June 13	Oct. 20 Oct. 1 Oct. 5 Oct. 16 Aug. 28	Oct. 16 Oct. 10 Oct. 14 Sopt. 25 Oct. 2 Sept. 24 Sept. 25	Nov. 3 Oct. 28 Oct. 31 Oct. 12 Oct. 12 Oct. 9 Oct. 13	Scant Scant Full Full Scant	May 5 Apr. 25 Apr. 22 May 3 Apr. 30 Apr. 28 Apr. 30	May 17 May 13 Apr. 30 May 12 May 10 May 11 May 11	May 16	June 28 June 5 June 5 May 30 June 10 June 7 June 13	Sept. 18 Aug. 15 Sept. 18	Sept. 21	Oct. 15 Oct. 5 Oct. 4	Scant. Full. Full. Full.
1897 1898	Apr. 12 Apr. 8 Apr. 7 Mar. 21 Apr. 18 Apr. 14 Apr. 7 Mar. 16 Apr. 18	Apr. 24 Apr. 26 Apr. 29 Apr. 19 Apr. 25 Apr. 14 Apr. 25	May 5	June 15 June 16 June 20 June 20 June 14 June 4 June 16 May 31 June 15	Sept. 25 Sept. 20 Sept. 18 Aug. 30 Aug. 28 Sept. 30 Sept. 30	Oct. 1 Oct. 2 Sept. 27 Sept. 27 Sept. 18 Oct. 5 Oct. 1	Oct. 15 Oct. 8 Oct. 16 Oct. 14 Oct. 2 Oct. 12 Oct. 10	Full	Apr. 23 May 2 May 11 May 2 May 1 Apr. 24 May 3 May 4 May 24	Apr. 30 May 15 May 15 May 8 May 7 Apr. 30 May 8 May 11 Apr. 30	May 24 May 15 May 12 May 7 May 19 May 20	May 19	Aug. 30 Sept. 18 Sept. 17 Aug. 25 Aug. 25 Sept. 25 None.	Oct. 14 Oct. 8 Sept. 27 Sept. 20 Oct. 2 Oct. 2 Oct. 6 Oct. 10	Oct. 24 Oct. 17 Sept. 28 Oct. 16	Full. Scant. Full. Scant. Full. Scant. Full. None.
1901 1902 1903 1904 1905 1906 1907 1908		May 3 May 10 May 14 May 15	May 10 May 19 May 20 May 25	June 10		Oct. 18	Oct. 3			May 6 May 10 May 25 May 16 May 18	May 15 May 21 May 31 May 21		Sept. 25	Sept. 25 Oct. 18 Nov. 8	Oct. 3	
1911 1912 Average Earlies	1	May 20 May 1 Apr. 14	May 31 May 13 Apr. 29	June 12	Sept. 23		Oct. 16		. May &	May 18	May 20	June 10		Oct. 5	Sept. 28	

Table 3.—Phenological observations at Wauseon, Ohio, on 48 different forest trees, shrubs and vines, 1883 to 1912, inclusive—Continued.

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Year.	Buds start.	First fully formed leaf.	In full leaf.	In blos- som.	Fruit ripe.	Complete change of foliage.	Divested of leaves.	Seeds, plentiful. or scant.	Buds start.	First fully formed leaf.	In full leaf.	In blos- som.	Fruit ripe.	Complete change of foliage.	Divested of leaves.	Seeds, plentiful or scant.
	1	2	8	4	5	6	7	8	1	2	8	4	5	6	7	8
			WHIT	E MAP	<b>LE</b> (1198	).					នប	GAR MA	APLE (1	200).		
1887 1888 1889 1890	Apr. 13	May 9 May 6 May 8 Apr. 23 May 8 May 8 May 7 Apr. 30	May 19 May 17 May 19 May 6 May 16 May 17 May 10 May 15	Apr. 1 Apr. 22 Apr. 13 Apr. 10 Apr. 11 Apr. 14 Apr. 8	May 19 May 22 May 28 May 19 June 3	Oct. 9 Oct. 9 Sept. 29 Oct. 10 Sept. 20 Oct. 1 Sept. 23 Oct. 8	Nov. 1 Nov. 6 Nov. 6 Oct. 17 Sept. 30 Oct. 8 Sept. 30 Oct. 23	Full. Full Full Full Full	May 1	May 12 May 12 May 7 May 6 May 10 May 11 May 8 May 8	May 20 May 19 May 17 May 12 May 16 May 27 May 11 May 20	Apr. 18 Apr. 29 Apr. 24 Apr. 15 Apr. 28 Apr. 30 Apr. 23 Apr. 24	None. Aug. 20 Sept. 1 Aug. 15 None.	Oct. 5 Oct. 9 Sept. 30 Oct. 5 Sept. 25 Oct. 8 Sept. 25 Oct. 3	Nov. 8 Nov. 10 Oct. 24 Oct. 25 Oct. 5 Oct. 29 Oct. 9 Oct. 25	None. Full. Scant. Scant. None.
1894 1895 1896 1897 1898 1899	Apr. 14 Apr. 19 Apr. 20 Apr. 15 Apr. 23 Apr. 16 Apr. 24	Apr. 29 May 4 May 8 May 2 May 2 Apr. 24 Apr. 29 Apr. 23 Apr. 30	May 10 May 17 May 20 May 10 May 9 May 10 May 10 May 13 May 5	Apr. 15 Apr. 6 Apr. 5 Mar. 18 Apr. 5 Apr. 13 Mar. 21 Mar. 19 Apr. 21 Apr. 8	May 22 May 20 June 8 None. May 22 None. June 2 May 16 May 12	Oct. 4 Oct. 5 Sept. 27 Oct. 2 Oct. 2 Sept. 24 Sept. 23	Oct. 24 Oct. 29 Oct. 23 Oct. 12 Oct. 16 Oct. 12 Oct. 8	Full	May 3 Apr. 26 Apr. 26 Apr. 17 Apr. 17 Apr. 17 Apr. 30	Apr. 30 May 14 May 12 May 6 May 3. Apr. 25 May 8 May 3 May 7	May 12 May 22 May 22 May 15 May 11 May 2 May 20 May 14 May 16	Apr. 22 May 6 May 5 Apr. 25 Apr. 27 Apr. 20 None. Apr. 28 May 1 Apr. 29	Aug. 5 Aug. 20 Aug. 25 None. Aug. 28 Aug. 25 None.		Oct. 31 Oct. 30 Nov. 5 Oct. 17 Oct. 22 Oct. 20 Oct. 29	Full. Full. Scant. None. Scant. Scant. None.
1901 1902 1903 1904 1905 1906 1907 1908 1909 1910		May 5 May 3 May 6 May 14 May 1 May 12 Apr. 10	May 16 May 20 May 15 May 18 May 10 May 20 Apr. 20	Apr. 8  Apr. 1  Mar. 27  Apr. 7  Mar. 25  Mar. 27  Apr. 16  Mar. 19	May 14 May 25 May 22 May 4	Oct. 20 Sept. 28 Oct. 7 Oct. 10 Oct. 27	Oct. 30 Oct. 22 Oct. 20			May 11 May 12 May 14 May 7 May 18 Apr. 20	May 17 May 20 May 22 May 16 May 24 May 2	May 2 Apr. 28 May 1 May 6		Sept. 30 Oct. 12 Oct. 25 Oct. 29	Oet. 22 Nov. 1	
1912	Apr. 23 Apr. 20 Apr. 13 Apr. 24	May 6	May 18 May 13 Apr. 20 May 20	Apr. 6 Apr. 5 Mar. 18 Apr. 22	May 25 May 22 May 4 June 8	Oct. 20 Oct. 6 Sept. 20 Nov. 10	Oct. 28 Oct. 21 Sept. 30	Full	Apr. 28 Apr. 26 Apr. 17	May 8 May 8 Apr. 20 May 18	May 18 May 16 May 2 May 27	May 16 Apr. 28 Apr. 15 May 16	None, Aug. 21 Aug. 5 Sept. 1	Oct. 11 Oct. 6 Sept. 25 Oct. 29	Oct. 23 Oct. 25 Oct. 5 Nov. 10	None.
		A	SH-LE	VED M	APLE (	1204).				но	RSE CE	ESTNU	T, BUC	KEYE (	1205).	
1888 1889 1890	Apr. 26 Apr. 29 Apr. 23 Apr. 22	May 11 May 13 May 7 May 5	May 18 May 20 May 11 May 18	May 3 May 4	Sept. 18 Sept. 26 Sept. 15 Sept. 20	Sept. 25 Oct. 5 Sept. 30 Oct. 3	Oct. 12 Oct. 12 Oct. 12 Oct. 9 Oct. 28	Full. Full. Full. Full.	Apr. 28 May 4 Apr. 18 Apr. 23 Apr. 30 Apr. 20 Apr. 24	May 11 May 12 Apr. 22 May 3 May 10 May 2 May 6	May 20 May 21 Apr. 29 May 14 May 15 May 7 May 16	May 23 May 22 May 2 May 2 May 24 May 12 May 24	None. Oct. 10 None. Oct. 10 Sept. 10	Oct. 16 Nov. 1	Nov. 10 Oct. 30 Nov. 10 Oct. 14 Oct. 10 Oct. 9 Oct. 28	None. Full. None. Scant. Full.
1891	Apr. 21 Apr. 18 Apr. 16 Apr. 25 Apr. 26 Apr. 20 Apr. 26 Apr. 17 Apr. 26	Apr. 30 May 5 May 6 May 4 May 5 Apr. 24 May 4 Apr. 30 Apr. 30	May 14 May 20 May 19 May 13 May 12 May 1 May 12 May 15 May 5	May 4	Aug. 25 Aug. 30 Aug. 16 Aug. 25 Aug. 25 Aug. 30 None.	Oct. 5 Oct. 6 Sept. 28 Oct. 5 Oct. 11 Oct. 8 Sept. 25	Oct. 18 Oct. 10	Full Full Full Full Full Full None	Apr. 23	Apr. 28	May 2 May 14 May 15 May 4 May 6 Apr. 28 May 7 May 8 May 3	May 12 May 14		Oct. 8 Oct. 6 Sept. 28 Sept. 26 Oct. 11 Sept. 24 Oct. 25	Sept. 30 Nov. 12	Full. Scant. Scant. Scant. None. None. Scant.
1904 1905	••••••	May 10	May 18	Apr. 30							May 12	May 20 May 17 May 17				
1907 1908 1909 1910	************	May 6 May 14 May 3 May 16	May 16	Apr. 29 May 1 May 8 May 6 Apr. 8							May 10 May 22 May 11 May 23 Apr. 24	May 4 May 30 May 15 May 24		Oct. 19 Nov. 8	Oct. 30	
	Apr. 22 Apr. 16 Apr. 29	May 4 Apr. 16 May 18	May 14 May 1 May 23	Apr. 28 Apr. 8 May 8	Sept. 1		Oct. 18		Apr. 23 Apr. 14	May 6 May 2 Apr. 12 May 17	May 12 May 10 Apr. 24 May 23	May 18 May 15 May 2 May 30	Sept. 30 Sept. 26 Sept. 10 Oct. 10	Oct. 12 Sept. 24	Nov. 8 Oct. 25 Sept. 30 Nov. 12	Full.

95627-15-4

TABLE 3.—Phenological observations at Wauseon, Ohio, on 48 different forest trees, shrubs, and vines, 1888 to 1912, inclusive—Continued.

[The numbers following the common names fefer to the numbers of the list on pp. 26 to 28.]

Year.	Buds start.	First fully formed leaf.	In full leaf.	In blossom.	Fruit ripe.	Complete change of foliage.	Divested of leaves.	Seeds, plentiful. or scant.	Buds start.	First fully formed leaf.	In full leaf.	In blossom.	Fruit ripe.	Complete change of foliage.	Divested of leaves.	Seeds, plentiful or scant.
	1	2	8	4	5	6	7	8	1	2	8	4	5	6	7	8
		FIV	E-LEAV	ED CR	EEPER	(1220).	, , , , , , , , , , , , , , , , , , ,				FLO	WERING	DOG'	WOOD		
1883 1884 1885 1886 1887 1888 1889	May 7 Apr. 26 Apr. 19 May 7 Apr. 28 Apr. 23 Apr. 28	May 16 May 13 Apr. 29 May 12 May 14 May 8 May 12	May 23 May 24 May 13 May 20 May 26 May 12 May 25	June 28 June 25 June 15 June 20 June 28 July 4 June 29	Aug. 25 Sept. 5 Sept. 26 Sept. 2 Sept. 18	Oct. 5 Oct. 3 Sept. 28 Sept. 25 Sept. 30 Sept. 25 Sept. 30		FewFewFull.Full.Scant.		May 23 May 17 May 26 May 6 May 20 May 20 May 12 May 12	June 1 May 26 June 5 May 21 May 21 May 28 May 18 May 30	May 20 May 18 None. May 7 May 11 May 15 May 10 May 17	Sept. 27 Sept. 12 Sept. 20 Oct. 15 Sept. 25	Sept. 28 Oct. 9 Oct. 5 Oct. 10 Oct. 10 Sept. 30 Oct. 8 Oct. 2	Oct. 16 Nov. 12 Oct. 26 Oct. 16 Oct. 18 Oct. 14 Oct. 10 Oct. 15	Full. Full. Scant. Full. Full.
1894 1895 1896 1897 1898	Apt. 22 Apr. 27 Apr. 24 Apr. 26 Apr. 26 Apr. 19 Apr. 26 Apr. 21 Apr. 21	May 1 May 12 May 15 May 7 May 3 Apr. 26 May 8 May 4 May 4	May 15 May 24 May 26 May 12 May 11 May 8 May 22 May 18 May 13	June 20 June 22 June 30 June 24 July 4 June 14 July 8 June 22 June 18 June 24	Sept. 30 Sept. 5 Sept. 20 Aug. 28 Aug. 24 Sept. 5 Oct. 5	Oct. 14 Oct. 6 Sept. 28 Sept. 26 Sept. 27 Oct. 8 Oct. 5			May 4 Apr. 20 Apr. 28 May 3 Apr. 27	May 10 May 24 May 20 May 7 May 12 May 9 May 9 May 11 May 4	May 23 June 6 June 1 May 22 May 24 May 16 May 25 May 28 May 17	May 15 May 25 May 24 May 10 None. May 26 May 22 May 6	Oct. 15 Oct. 2 None. Sept. 20 None. None.	Oct. 23 Oct. 8 Oct. 16 Oct. 3 Oct. 11 Sept. 24 Oct. 28	Oct. 31 Oct. 18 Oct. 27 Oct. 16 Oct. 20 Oct. 12 Nov. 15	Full. Full. None. Scant. None. None. None.
1901 1902 1903 1904 1905 1906 1907 1908 1909		May 10 May 12 May 28 May 12 May 10	May 21 May 24 June 6 May 20 May 20	June 27	Sept. 30	Oct. 26 Nov. 20	Oct. 4 Nov. 1 Nov. 28			May 6 May 17 June 1 May 12	May 18 May 25 June 14 May 19	May 19 May 19 May 14 May 30 May 16 May 27 May 10		Oct. 30		
1911 1912		May 10 May 9 Apr. 26 May 28	May 21 May 20 May 8 June 6		Sept. 20	Oct. 11 Oct. 6 Sept. 25 Nov. 20	Oct. 28	Full	May 4	May 12	May 22	May 20 May 17 May 6 May 30	Sept. 28 Sept. 12 Oct. 15	Oct. 10 Sept. 24	Oct. 22 Oct. 10 Nov. 15	
			KINI	NIKINNI	<b>K</b> (1363)	).					BLACK	HUCK	LEBER	RY (1393	·).	
1886 1887 1888	Apr. 23 Apr. 16 Apr 16 Apr. 23 Apr. 22 Apr. 14	May 10 May 4 May 1 May 11 May 8 May 7	May 24 May 16 May 14 May 26	June 25 June 6 May 25 June 21 June 21 June 15	Aug. 10 Aug. 15 Sept. 5 Sept. 10 Aug. 20	Oet. 6	Oct. 31 Nov. 4 Oct. 15 Oct. 29 Oct. 9	Full. Full Full Full Full	May 6	May 10		May 30 May 20 May 20 May 14 May 18	July 15 July 24 July 20	Sept. 20 Sept. 39 Sept. 25	Oct. 15 Oct. 25 Oct. 25 Oct. 25 Oct. 18	Full. Full.
1896 1897 1898	Apr. 12 Apr. 26 Apr. 26			June 20	Aug. 30 Aug. 27	Oct. 16 Oct. 15 Oct. 23 Oct. 6 Sept. 25	Oct. 25 Oct. 17 Oct. 30 Oct. 15 Oct. 8	Scant Scant	Apr. 18 May 3	May 1 Apr. 25 May 12	May 5 May 22	May 6 May 15	1 .	Oct. 2 Oct. 2		Full. Full.
1901 1902 1903 1904 1905 1906 1907 1908		May 16		May 23			Nov. 14		Apr. 24 May 5	. May 15 May 3 May 15 May 30 May 10 May 25	May 23 May 16 May 25 June 10 May 18	May 18 May 16 May 21 May 30 May 17	July 19 July 20 July 18	Oct. 10	Oct. 22	Not full. Full. Scant. Not full. Full. Scant. None.
1911 1912	May 5	May 15	May 26	June 1	Sept. 3	Oct. 20	Oct. 28	Full	May 2	May 13	May 22	May 18	July 8	Sept. 29	Oct. 20 Oct. 14 Oct. 25	

Table 3.—Phenological observations at Wauseon, Ohio, on 48 different forest trees, shrubs, and vines, 1883 to 1912, inclusive—Continued.

[The numbers following the common names refer to the numbers of the list on pp. 26 to 28.]

Year.	Buds start.	First fully formed leaf.	In full leaf.	In blos- som.	Fruit ripe.	Complete change of foliage.	Divested of leaves.	Seeds, plentiful or scant.	Buds start.	First fully formed leaf.	In full leaf.	In blos- som	Fruit ripe.	Complete change of foliage.	Divested of leaves.	Seeds, plentiful or scant.
	1	2	8	4	5	6	7	8	1	2	8	4	- 5	6	7	8
			BLVE	HUCKI	EBERR	<b>Y</b> (1398)	•			<u> </u>	P	ERSIMN	10N (14	16).		
883 884 885 886 887 888 889	May 5	May 11	May 22	May 19		Sept. 25	Oct. 25	Full	May 4	June 2 May 16 May 16	June 6 May 30 May 26	None	Sept. 20	Oct. 10 Sept. 28 Oct. 1	Oct. 24 Oct. 10 Oct. 10	None. Scant.
89 90	Apr. 29 May 8	May 8 May 12	May 13 May 22	May 13 May 12	July 26 July 19	Sept. 25 Oct. 1	Oct. 30 Oct. 18		May 9 May 16	May 30 May 11 May 24	May 17 June 6	None None None	None None	Sept. 30 Oct. 10	Oct. 26 Oct. 9 Oct. 16	None. None. None.
391 392 393 394 395 396				May 4 May 23 May 5	July 16 July 28 July 2			Full Full		May 15 June 3 May 22 May 13 May 10 May 10 May 25	May 22 June 12 June 5 May 27 May 24 May 18	June 15 June 21 June 17 June 12 June 10	Oct. 20 Nov. 1 Oct. 16 Sept. 25 None Oct. 8	Oct. 7 Oct. 6 Oct. 8 Sept. 27 Oct. 11 Sept. 24	Oct. 31 Oct. 30 Oct. 18 Oct. 16 Oct. 18 Oct. 5	Full. Scant. Full. Scant. None. Scant.
اا				May 18				FullFull	1		June 10 June 1 May 18	None June 18	None	Sept. 25	Oct. 12	None.
02 03 04 05 06 07	Apr. 25 May 8	May 2 May 17 May 31	May 14 May 26 June 10	May 14 May 22 May 30	July 22 July 20 Aug. 2	Oct. 10	Oct. 18	Full		May 18	May 28			Sept. 28	Oct. 18	
12::::	********	May 12 May 26	May 19	May 19	Aug. 2 July 20	Oct. 28	••••••	Full Scant None	May 16	May 26	June 3	June 19	Oct. 12	Oct. 11		¡Full.
n. 1		1 1	May 20 May 5 June 10	May 16 May 4 May 30	July 19 July 2 Aug. 2	Oct. 1 Sept. 25 Oct. 28	Oct. 20 Oct. 15 Oct. 30		May 11 May 1 May 26	May 19 May 8 June 3	May 30 May 17 June 14	June 15 June 10 June 21	Oct. 10 Sept. 20 Nov. 1	Oct. 3 Sept. 24 Oct. 11	Oct. 18 Oct. 5 Oct. 31	
			WH	TE ASI	<b>I</b> (1417).						В	LACK A	ASH (14:	21).		
383 384 385 386 387 388 389	May 11 May 5 May 18 Apr. 25 May 6 May 11 Apr. 30 Apr. 28	May 25 May 15 May 25 May 6 May 15 May 22 May 8 May 12	June 5 May 24 May 30 May 25 May 25 May 30 May 15 May 24	June 16	Aug. 15 None July 2 None None	Oct. 9 Sept. 30 Oct. 5	Oct. 20 Oct. 24 Oct. 13 Oct. 15 Oct. 2 Oct. 5 Sept. 28 Oct. 10	Full None Scant None	May 4 May 7 Apr. 25 May 16 May 12 May 1	May 25 May 15 May 24 May 6 May 22 May 23 May 8 May 18	June 5 May 23 May 29 May 19 May 30 May 31 May 17 May 27	May 21 May 7 June 13 Apr. 24 None May 10 None	None	Sept. 26 Oct. 5 Sept. 20 Sept. 20	Oct. 20 Oct. 22 Oct. 13 Oct. 13 Oct. 2 Oct. 1 Sept. 28 Oct. 10	Scant. None. Scant. None. None.
391 392 393 394 395 396 397 398		May 10 May 24 May 19 May 9 May 5 Apr. 28 May 13 May 18 May 6	May 22 June 4 May 30 May 22 May 13 May 10 May 22 May 27 May 18	Apr. 27 May 12 None	None None Aug. 30	Sept. 28 Sept. 30 Oct. 5 Sept. 27 Oct. 2 Sept. 24 Sept. 24		Scant. None. Full. Scant. None. None Full.	May 13 May 14 May 4 Apr. 27 Apr. 27 May 4 May 11	May 13 May 22 May 22 May 11 May 9 Apr. 30 May 14 May 18 May 6	May 30 June 3 June 1 May 22 May 15 May 10 May 24 May 26 May 17	May 13 None	None	Sept. 24		Scant. None. Full. Scant. None. None. Full.
01.		litay 0		May 12 May 12								May 7				
05 08 07 08 09		May 15 May 16 June 4 May 15	June 5 May 30 May 28 June 15 May 22 May 31 May 30	May 15 May 18 May 8 None May 17 May 25	None	Oct. 14 Sept. 25 Oct. 14 Sept. 27 Oct. 25	Oct. 28			May 18 May 15 June 5	June 2 May 27 June 15 May 20 May 31	May 25 May 5 None	None,	Sept. 28 Sept. 27 Oct. 20	Oct. 10 Oct. 12	
Verage arliest	May 7 May 5 Apr. 20 May 18		May 28 May 26 May 10	None May 13 Apr. 24 June 16	None Aug. 21 July 2	Oct. 11 Oct. 2 Sept. 20 Oct. 25	Oct. 20	None	May 6 May 6 Apr. 25 May 17	May 17 May 17 Apr. 30 June 5	May 27 May 26 May 10 June 15	None May 13	None Aug. 20 July 4 Sept. 30	Oct. 11 Sept. 30 Sept. 20	Oct. 20 Oct. 10 Sept. 28 Oct. 22	None.

Table 3.—Phenological observations at Wauseon, Ohio, on 48 different forest trees, shrubs and vines, 1883 to 1912, inclusive—Continued.

[The numbers following the common names refer to the numbers of the list on pp. 26 to 28.]

Year	Buds start.	First fully formed leaf.	In full leaf.	In blos- som.	Fruit ripe.	Complete change of foliage.	Divested of leaves.	Seeds, plentiful or scant.	Buds start.	First fully formed leaf.	In full leaf.	In blos- som,	Fruit ripe.	Complete change of foliage.	Divested of leaves.	Seeds, plentiful or scant.
	1	2	8	4	5	6	7	8	1	2	8	4	5	6	7	8
•	<u> </u>	T	RUMPE	T CREI	EPER (1	666).					BU	TTON I	BUSH (1	688).		
1883 1884 1885 1886 1887 1888 1889 1890	May 18 May 25 Apr. 28 May 10 May 25 May 10 May 22	May 26 May 31 May 8 May 16 May 31 May 13 May 28	May 31 June 4 May 21 May 28 June 12 May 22 June 4	July 8 July 13 June 22 June 23 July 4 July 7 June 30	Oct. 25 Sept. 20 Oct. 1 Sept. 20 Oct. 8	Sept. 26	Nov. 10 Oct. 14 Oct. 24 Oct. 5 Oct. 8 Oct. 3 Oct. 18	Full Full Full Full	May 10 May 19 Apr. 23 May 13 May 24 May 8 May 22	May 25 May 27 Apr. 30 May 19 May 30 May 13 May 28	June 5 June 6 May 22 May 24 June 12 May 17 June 10	July 15 July 22 July 25 July 9 June 20 July 25 July 18	Sept. 30	Oct. 3 Oct. 5 Sept. 25 Oct. 5	Oct. 25 Oct. 26 Oct. 24 Oct. 15 Oct. 18 Oct. 5 Oct. 20	Full. Full. Full. None. Full.
	May 10 May 24 May 22 May 6 May 11 May 1 May 16 May 9 May 2	May 21 June 1 June 6 May 15 May 12 May 10 May 22 May 18 May 10	June 3 June 12 June 18 May 27 May 30 May 18 June 4 May 28 May 20	July 10 July 7 July 9 June 30 June 21 June 14 July 10 June 28 June 23 June 25	Oct. 10 Sept. 30 Sept. 16 Sept. 15 Aug. 30 Sept. 10 None	Oct. 7 Oct. 2 Oct. 2 Oct. 12 Oct. 11 Sept. 24 Oct. 2	Oct. 31 Oct. 2 Oct. 15 Oct. 17 Oct. 20 Oct. 1 Oct. 12	Scant Full Full Scant Scant Full None	Apr. 30 May 11 May 12 May 2	May 14  May 7  May 19  May 21  May 8	May 21 June 18 June 1 May 20	July 14 July 26 July 13 July 28 July 2 July 15 July 5 July 17	Oct. 3	Oct. 6 Oct. 6 Sept. 22	Oct. 13 Oct. 2	Scant. Scant. None. None.
1901 1902 1903 1904 1905 1906 1907 1908 1909				July 1						May 16 May 26	June 2	July 13 July 12 July 17 July 28		Sept. 27	Oct. 22 Oct. 12	,
1911 1912 Average Earliest Latest	May 13 May 13 Apr. 28	May 21 May 21 May 8 June 6	May 31 May 28 May 18 June 18	July 6 July 1 June 14 July 13  MON EL	Sept. 30 Sept. 25 Aug. 30 Oct. 25	Oct. 6 Oct. 4 Sept. 24 Oct. 14	Oct. 15	Scant			June 1 May 17 June 18	June 14 June 20 July 28	Sept. 26 Sept. 2 Oct. 10	Oct. 2 Sept. 22 Oct. 8	Oct. 16 Oct. 2	
	1	1		TON EL	DER (I	103).				1	, s	NOM B	ALL (17	06). 	<del></del>	
1883 1884 1885 1886 1887 1888 1889	Apr. 21 Apr. 15 Apr. 24 Mar. 28 Apr. 20 Apr. 26 Apr. 15 Apr. 10	May 2 Apr. 30 May 19 Apr. 25 May 5 May 11 May 6 Apr. 25	May 12 May 12 May 27 May 6 May 13 May 16 May 11 May 9	June 29 June 20 June 28 June 14 June 16 June 24 June 21 June 16	Aug. 2 Aug. 15 Sept. 1 Aug. 14 Aug. 18	Oct. 9	Oct. 23 Oct. 23 Oct. 1 Oct. 30		May 3 Apr. 20 Apr. 25 Apr. 28 May 21 Apr. 25	May 11 Apr. 26 May 5 May 13 May 8 May 1	May 15 May 6 May 18 May 21 May 12 May 8	June 1	None None None None None	Nov. 3 Oct. 16 Oct. 12 Oct. 8	Nov. 16	None. None. None. None. None. None.
1899	Apr. 14 Apr. 16 Apr. 5 Apr. 12 Apr. 18 Apr. 14 Apr. 6 Mar. 30 Apr. 22	Apr. 23 Apr. 23 Apr. 19 Apr. 30	Mav 9	June 25 June 17 June 12 June 13	Aug. 18 Aug. 12 Aug. 8 Aug. 26	Oct. 19 Oct. 4	Oct. 17 Oct. 20 Oct. 24 Oct. 18	Full Full None None None	Apr. 20 May 1 Apr. 14 Apr. 14 May 2 Apr. 25 Apr. 27 Apr. 19 Apr. 27	Apr. 30 May 14 Apr. 30 Apr. 30 May 7 Apr. 30 May 2 May 11 May 1	May 15 May 20 May 12 May 12 May 12 May 6 May 14 May 13 May 9	May 11 May 30 May 23 May 26	None Oct. 11 Oct. 11 Oct. 11	Oct. 18 Oct. 16 Oct. 8 Oct. 11 Oct. 10	Oct. 31 Nov. 1 Nov. 5 Oct. 17 Oct. 20 Oct. 26 Oct. 18	None. None. None.
1902		Apr. 30 Apr. 21 May 8 May 8 May 8 May 12	May 6	May 18 June 12 July 1 June 15 June 24 June 17	Aug. 5	Sept. 30 Oct. 20 Oct. 30	Oct. 16			May 8 May 3 May 7 May 15 May 20 Apr. 25	May 19 May 10 May 17 May 25 May 29 May 8	May 23 May 23 June 8 May 27 May 30 May 14	None None None None	Oct. 20	Oct. 30	
1911 1912 Average Earliest Latest			May 12 Apr. 25 May 27	June 18 May 18 July 1	Aug. 18 Aug. 2 Sept. 10	1			Apr. 25	May 5	May 14	May 26	1	Oct. 18	Oct. 29 Oct. 10	

Table 3.—Phenological observations at Wauseon, Ohio, on 48 different forest trees, shrubs and vines, 1888 to 1912, inclusive—Concluded.

[The numbers following the common names refer to the numbers of the list on pp. 26 to 28.]

Year.	Buds start.	First fully formed leaf.	In full leaf.	In blos- som.	Fruit ripe.	Complete change of foliage.	Divested of leaves.	Seeds, plentiful or scant.	Buds start.	First fully formed leaf.	In full leaf.	In blos- som.	Fruit ripe.	Complete change of foliage.	Divested of leaves.	Seeds, plentiful or scant.
	1	2	8	4	5	6	7	8	1	2	8	4	5	6	7	8
			BLA	CK HAV	<b>W</b> (1712)	•				T	RUMPE	T HON	EYSUCI	<b>KLE</b> (17:	23).	
1883 1884 1885 1886 1887 1888 1889	Apr. 16 Apr. 30 May 2 Apr. 23 Apr. 15	May 11 May 6 May 8 Apr. 22 May 3 May 10 Apr. 29 Apr. 28	May 18 May 15 May 17 Apr. 29 May 12 May 14 May 8 May 3	June 3 May 27 May 30 May 13 May 24 May 29 May 18 June 1	Oct. 2 Sept. 15 Sept. 15 Sept. 30 Sept. 30	Sept. 20 Oct. 9 Sept. 18 Oct. 15 Sept. 20 Oct. 2 Sept. 30 Oct. 2	Oct. 20 Oct. 30 Oct. 29 Oct. 24 Sept. 30 Oct. 13 Oct. 9 Oct. 15	Full. Full Scant. Full. Full.		May 6 Apr. 28 Apr. 22 Apr. 28 Apr. 16	May 16 May 8 May 3 May 10 Apr. 30	June 13 May 18 June 13 June 21 June 14 June 7	None None None None	Oct. 5 Nov. 7 Oct. 15 Oct. 29 Oct. 8	Nov. 13 Nov. 14 Nov. 1 Nov. 18 Oct. 10	None. None. None. None.
891 892 893 894 895 896 897 898	Apr. 17 Apr. 16 Apr. 11 Apr. 12 Apr. 20 Apr. 14 Apr. 21 Apr. 14 Apr. 26	Apr. 23 May 8 Apr. 30 Apr. 23 Apr. 30 Apr. 20 Apr. 26 Apr. 21 May 2	May 1 May 20 May 13 May 1 May 6 Apr. 27 May 8 May 4 May 14	May 20 June 6 May 31 May 23 May 25 May 9 June 6 May 23 June 14	Oct. 15 Oct. 8 Oct. 3 Sept. 30 Oct. 6 Sept. 16 Sept. 30	Oct. 8 Oct. 8 Oct. 5 Oct. 5 Oct. 11 Oct. 2 Oct. 4	Oct. 25 Oct. 24 Oct. 17 Oct. 16 Oct. 25 Oct. 14 Oct. 18	Full Scant Full Scant Full Scant Full Scant	Apr. 12 Apr. 18 Apr. 6 Mar. 21 Apr. 11 Apr. 16 Apr. 6 Mar. 19 Apr. 23	Apr. 20 May 2 May 2 Apr. 16 Apr. 28 Apr. 23 Apr. 23 Apr. 18 Apr. 27	May 2 May 14 May 9 Apr. 28 May 7 May 4 May 5 May 1 May 2	May 23 June 6 June 13 May 22 June 2 May 14 May 24 June 5 May 23	Aug. 5 Aug. 10 None None	Oct. 20 Oct. 30 Oct. 19 Oct. 14	Nov. 16 Nov. 10 Nov. 20 Nov. 20 Nov. 10 Nov. 2 Oct. 30	Full. Full. Scant. Scant. None. None.
901 902 903 904 905 906 907 908 909		Apr. 28 May 2 May 10	May 5 May 10 May 26	May 10 May 16	Oct. 1	Oct. 28	Oct. 28			May 3 May 5 May 17 May 10 May 10	May 14 May 23 May 28 May 20 May 20	June 6  June 8 May 27 June 15  May 31		Oct. 26 Nov. 20	Nov. 1	
911 912 Verage arlest atest	Apr 20		May 9 Apr. 27 May 26	May 25 May 9 June 14	Sept. 27 Sept. 15 Oct. 15		••••••		Apr. 30	May 7 Apr. 29 Apr. 16 May 17		June 3 June 5 May 14 June 21	l	Nov. 3	Nov. 9 Nov. 7 Oct. 10 Nov. 20	Full.
		CHI	NESE 1	HONEY	SUCKLE	(1724).					BUSH	HONEY	SUCKL	E (1728)	•	
883 884 185 187 187 1888 189	Mar. 30 Apr. 10 Mar. 19 Apr. 7 Apr. 2 Mar. 23 Mar. 21	Apr. 25 Apr. 26 Apr. 16 Apr. 18 Apr. 24 Apr. 16 Apr. 11	May 4 May 7 Apr. 24 May 1 Apr. 30 Apr. 30 Apr. 23	May 23 May 28 May 11 May 17 May 26 May 12 May 24	July 12 July 13 July 20 None July 22	Oct. 9 Sept. 20 Sept. 27 Sept. 25 Sept. 20 Sept. 20 Sept. 30	Oct. 25 Oct. 8 Oct. 13 Oct. 1 Oct. 2 Oct. 5 Oct. 15	Scant Scant None Scant								
391 392 393 394 395 396 397 398	Apr. 18 Mar. 17	Apr. 19 May 1 Apr. 15 Mar. 22 Apr. 21 Apr. 22 Apr. 25 Apr. 14	Apr. 30 May 14 May 8 Apr. 28 May 6 May 4 May 10 May 1 May 9	June 13 June 18 June 15 June 7 June 6 May 27 June 20 June 8 June 8	Sept. 10 Oct. 1 None Oct. 15 None None	Oct. 23 Oct. 30 Nov. 7 Nov. 8 Oct. 30 Oct. 19 Oct. 24	Nov. 16 Nov. 10 Nov. 30 Nov. 20 Nov. 10 Nov. 5 Nov. 15	Scant Scant None Scant				May 19 May 20 May 3 May 5 Apr. 30 May 13 May 10 May 6	July 2			
01 02 03 04 08 08 07		May 9	May 10 May 23 May 30 May 18 May 20													
11. 12. Verage arliest atest	May 2	May 12			Sept. 10	Nov. 3	Nov. 9	Scant	Apr. 23	May 4	May 15	May 18	July 8	Oct. 11	Oct. 20	Scant.

<sup>1</sup> Vines were winter killed, blossomsJonjnewigrowth.

Table 4.—Dates of blossoming at Wauseon, Ohio, for 114 different plants, 1883 to 1912.

[The numbers following the common names refer to the numbers of the list on pp. 26 to 28.]

Year.	Orchard grass (234).	Wire grass (236).	June grass (237).	Chess (264).	Indian turnip (463).	Green dragon (484).	Day Ifly (512).	Canada lily (520).	Adder's tongue, yellow (522).	Adder's ton gue, white (523).	Tulip.	False Solomon's seal (531).	Smooth Solomon's seal (53%).	Wake robin (543).	Crocus.
1883. 1884. 1885. 1886. 1887. 1888. 1889.					May 9			July 4 July 14 June 15 July 5 July 8 July 11 June 22	May 5 Apr. 26 Apr. 28 Apr. 22 Apr. 24 Apr. 28 Apr. 18 Apr. 17	Apr. 27 Apr. 29 Apr. 19 Apr. 24 Apr. 29 Apr. 22 Apr. 18	May 24 May 5 May 11 May 21 May 9 May 16			May 5	Apr. 22 Apr. 16 Apr. 14 Apr. 8
1891. 1892. 1893. 1894. 1895. 1896. 1897. 1898. 1899. 1900.	June 11 June 10 June 8 May 31 June 5 May 19 June 9 June 2 June 5 June 3 June 6	June 22 June 18 June 28 June 28 June 22 June 10 June 23 June 20 June 20 June 24 June 20	May 29 June 1 June 2 May 26 May 29 May 14 June 3 May 27 May 26 May 27 June 6		Apr. 30 May 12 May 20 May 7 May 11 May 6 May 23 May 18 May 8 May 28	June 22 June 14 June 10 June 18 June 20 June 4 June 9 June 15 June 20	June 21 June 24 June 30 June 27 June 24 June 22 July 4 June 25 June 20 June 26	June 19 June 23 July 3 July 9  July 24 July 5 July 5 July 6	Apr. 20 Apr. 21 Apr. 14 Apr. 15 Apr. 22 Apr. 14 Apr. 27 Apr. 14 Apr. 28 Apr. 28	Apr. 20 Apr. 27 Apr. 16 Apr. 16 Apr. 23 Apr. 16 Apr. 24 Apr. 15 Apr. 22 Apr. 28 Apr. 28	May 11 May 22 May 20 May 6 May 7 May 2 May 13 May 12 May 6 May 13	June 13 June 14 June 15 June 12 June 10 June 2 June 12 June 9 June 9 June 11 June 7	June 10 June 14 June 15 June 12 June 28 May 28 June 17 June 9 June 8 June 10	May 8 May 8 May 1 May 3 May 4 Apr. 29 May 3	Apr. 14 Apr. 2 Apr. 21 Apr. 13 Apr. 11 Apr. 11 Mar. 21 Apr. 24 Apr. 9
1902 1903 1904 1905 1905 1907 1908 1909 1910	May 26	June 28 July 6 July 12 June 16 June 24 June 24 June 8	May 25		May 12 May 11 May 30 May 16		June 29 June 26 June 30 July 2 June 29	July 16 July 2 July 10 July 8	Apr. 29	Apr. 19 Apr. 23 Apr. 29				May 7 May 3 May 18 May 9 May 12 Apr. 25 May 7	Apr. 17 Mar. 28 Apr. 4 Apr. 4 Apr. 5 Apr. 5 Mar. 26 Apr. 6 Apr. 6 Apr. 12
Average. Earliest. Latest.	June 6 June 5 May 19 June 17	June 17 June 22 June 8 July 12	May 30 June 1 May 14 June 13		May 21 May 14 Apr. 30 May 30	June 15 June 4 June 22	June 29 June 27 June 20 July 4	July 5 June 15 July 24	Apr. 29 Apr. 23 Apr. 14 May 5	Apr. 29 Apr. 22 Apr. 15 Apr. 29	Apr. 28 May 9 Apr. 25 May 24	June 5 June 10 June 2 June 15	June 5 June 10 May 28 June 17	May 6 May 5 Apr. 25 May 18	Apr. 8 Mar. 21 Apr. 24
Year.	(556).	el (695).	(714).	reed (715).	ars (729).	(759).		ė.	e (823).	me (824).	(829).		crowfoot		
	Blue flag (556)	Sheep sorrel (695).	Smartweed (714).	Water smartweed (715)	Lamb's-quarters (729)	Spring beauty (759).	Purslane (762).	Corn cockle (763).	Wild columbine (823)	Garden columbine (824).	Dwarf larkspur (829).	Hepatica (836).	Yellow water cı (842).	Mandrake (867).	Bloodroot. (876).
1883 1884 1885 1886 1887 1888 1889						<del> </del>	<del></del>		Turne 2		June 15 June 3 July 5 June 12	Amn 14	Yellow water (842).		Apr. 25 Apr. 25 Apr. 19 Apr. 30 May 18 Apr. 19
1884 1885 1887 1887 1889 1890 1890 1891 1892 1893 1894 1895 1896 1897 1808 1899 1900	June 6  May 30  June 11  May 31  June 2  May 31	May 15 May 20 May 23 May 24 May 26 May 23 May 15 May 17 May 14	July 31 July 24 July 18 Aug. 11 June 18 July 25 June 10	July 30 Aug. 12 July 22 July 19	July 27 Aug. 6 Aug. 10 July 27 Aug. 14 June 25 Aug. 27 Aug. 25 July 21	Apr. 18 Apr. 27 Apr. 27 Apr. 16 Apr. 15 Apr. 11 Apr. 11 Apr. 11 Apr. 11 Apr. 11 Apr. 18 Apr. 10 Apr. 18 Apr. 12 Apr. 24	July 31 July 26 June 29 June 26 June 26 June 26 June 29 June 26	June 8 June 14 June 15 June 14 June 17 June 14 June 7 June 3 June 5 June 5 June 8	June 2 May 17 May 27 May 6 May 16 May 18 May 11 May 10 May 19 May 7 May 7 May 7 May 8 May 17 May 11 May 12 May 13 May 14 May 14 May 15 May 16 May 17 May 17 May 18 May 18	May 30 May 13 May 19 May 19 May 22 May 20 May 10 May 17	June 15 June 3 June 3 July 5 June 12 June 18 June 18 June 18 June 18 June 10 June 10 July 4 June 28 June 23	Apr. 14 Apr. 28 Apr. 12 Apr. 14 Apr. 25 Apr. 16 Apr. 16 Apr. 16 Apr. 17 Apr. 11 Apr. 19 Apr. 3 Apr. 24 Apr. 17	Apr. 30 May 4 Apr. 30 Apr. 4 Apr. 22 Apr. 26 May 2 May 7	May 13 May 25 May 24 May 10 May 10 May 8 May 18	Apr. 25 Apr. 19 Apr. 19 Apr. 19 Apr. 19 Apr. 20 Apr. 24 Apr. 24 Apr. 24 Apr. 24 Apr. 24 Apr. 24
1884 1885 1886 1887 1889 1889 1890 1891 1892 1893 1894 1895 1896 1897 1899 1900	June 6  May 30 June 11 May 31 June 2 May 31 June 15	May 15 May 20 May 23 May 14 May 26 May 23 May 15 May 17 May 14	July 31 July 24 July 18 Aug. 11 June 18 July 3 July 25 June 10 July 24 July 24 Aug. 16	July 30 Aug. 12 July 22 July 19 Aug. 10 Aug. 5 Aug. 8	July 27 Aug. 6 Aug. 10 July 27 Aug. 14 June 25 Aug. 27 Aug. 25 July 21	Apr. 18 Apr. 27 Apr. 27 Apr. 15 Apr. 15 Apr. 15 Apr. 16 Apr. 17 Apr. 18 Apr. 11 Apr. 18 Apr. 14 Apr. 18 Apr. 22 Apr. 24 Apr. 26 Apr. 20 Apr. 21 Apr. 24	July 31 July 20 June 26 June 26 June 16 July 29 June 26 June 26 June 26  July 23 July 23 July 23 July 26 Aug. 20	June 8 June 14 June 15 June 11 June 11 June 7 June 8 June 5 June 8	June 2 May 17 May 27 May 7 May 7 May 16 May 33 May 11 May 20 May 19 May 19 May 17 May 18 May 11 May 18 May 12 May 12 May 16 May 12 May 16 May 12 May 16 May 12 May 16 May 17 May 16 May 17 May 18 May 18 May 18 May 19	May 30 May 13 May 12 May 12 May 22 May 10 May 17 May 25  May 20 May 27 May 27 May 27 May 28 May 22	June 15 June 3 July 3 July 5 June 12  June 18 June 11 June 18 June 10 July 4 June 28 June 23	Apr. 14 Apr. 10 Apr. 28 Apr. 12 Apr. 14 Apr. 15 Apr. 16 Apr. 16 Apr. 17 Apr. 16 Apr. 11 Apr. 19 Apr. 3 Apr. 3 Apr. 17 Apr. 17 Apr. 18 Apr. 17 Apr. 19 Apr. 19 Apr. 17	Apr. 30 May 4 Apr. 21 May 4 Apr. 22 Apr. 24 Apr. 22 Apr. 24 Apr. 26 May 7	May 13 May 25 May 24 May 10 May 8 May 18 May 16	Apr. 25 Apr. 26 Apr. 38 Apr. 19 Apr. 24 Apr. 26 Apr. 26 Apr. 27 Apr. 28 Apr. 19 Apr. 1

Table 4.—Dates of blossoming at Wauseon, Ohio, for 114 different plants, 1883 to 1912—Continued.

[The numbers following the common names refer to the numbers of the list on pp. 26 to 28.]

			-												
Year.	Dutchman's breeches (879).	Bleeding Heart (881?).	White mustard (895).	Black mustard (896).	Horse Radish (907).	Bitter Cross (913?).	Papper Root (916).	Shepherd's purse (920).	Mock crange (964).	Five finger (1003).	Wild lupine (1065).	Alfalfa (1066).	White sweet clover (1068).	Yellow sweet clover (1069).	Low hop clover (1071).
1883 1884 1885 1886 1887 1887 1888 1889						Apr. 27 Apr. 13 Apr. 15 Apr. 22 Apr. 17 Apr. 15	Apr. 28 Apr. 25 Apr. 21 Apr. 26 Apr. 26 Apr. 24								
1891 1892 1893 1894 1895 1896 1897 1897 1898		May 2 May 6 May 18 May 2 May 5 May 12 May 11 May 7 May 5 May 12	May 23 May 28 May 14 May 26 May 21 June 12 May 1 June 3 May 31	June 6 May 28 May 17 June 3 May 13 May 29 June 5 June 8 May 28	May 21 May 22 May 23 May 11 May 9 May 4 May 18 May 12 May 6 May 17	Apr. 17 Apr. 12 Apr. 12 Apr. 15 Apr. 24 Apr. 18 Apr. 21 Apr. 24 Apr. 29 May 2	Apr. 22 Apr. 16 Apr. 12 Apr. 11 Apr. 20 Apr. 25 Apr. 25 Apr. 27 May 2	Apr. 14 Apr. 4 Apr. 3 Apr. 14 Apr. 13 Apr. 18 Apr. 19 Mar. 28 Apr. 25 Apr. 17	June 6 June 6 June 4 June 8 May 20 May 16 June 10 May 26 June 6 June 15	May 21 May 25 June 2 May 16 May 11 May 27 May 20 May 12 May 16	May 24 May 13 May 19 May 8 May 25 May 18		July 1 July 2 June 24 June 19 June 25 June 13 June 24 June 23 June 14 June 22	June 18	June 10 June 12 June 8 June 7 June 4 May 23 June 14 June 3 June 9 June 6
1901 1902 1903 1904 1905 1906 1907	Apr. 29 Apr. 29 May 3 Apr. 20	May 13  May 15  May 4  June 10  May 9	June 6 June 7 June 6 June 21	June 18  June 14  July 2  June 13	May 12		Apr. 28 Apr. 18	Apr. 26 Mar. 28 Apr. 13	June 7  May 31  May 29  June 12  May 30	May 23  May 15  June 6  May 20	May 31  May 20  May 22  May 30		June 24  June 18 June 20 July 17 June 24	June 25	June 8  May 27  June 20  June 18  June 8
1910	Apr. 26 Apr. 4 Apr. 27 Apr. 27 Apr. 28 Apr. 4 May 3	May 13 Apr. 25 May 11 May 11 May 9 Apr. 25 June 10	June 8 June 2 June 3 May 29 June 2 May 21 June 21	June 21 June 21 June 8 June 20 June 8 May 13 July 2	June 2 June 1 May 31 May 22 May 19 May 4 June 6	May 1 Apr. 29 Apr. 28 Apr. 20 Apr. 10 May 2	Apr. 29  Apr. 23  Apr. 11  May 2	Apr. 5 Apr. 11 Apr. 26 May 12 Apr. 14 Mar. 28 May 12	June 7 June 1  May 28 June 3  June 3  May 16 June 15	June 15 May 14 May 30 May 22 May 11 June 15	May 28 May 23 May 8 June 6	June 22 June 14 June 12 June 12 June 15	July 2 July 2 June 28 June 26 June 25 June 13 July 7	June 23 June 30 June 24	June 7 May 28 June 1 June 18 June 8 May 23 June 20
Year.	Alsike clover (1077).	White clover (1078).	Tick trefoil (1099).	Granesbill (1133).	Yellow wood sorrel (1143).	Early blue violet (1260).	Larkspur violet (1261).	Hooded blue violet (1262).	Arrow-leaf violet (1263).	Bird-foot violet (1265).	Sweet white violet (1267).	Lance-leaf violet (1269).	Yellow violet (1272).	Canada violet (1273).	Cream-colored violet (1274).
1883						May 1 Apr. 29 May 8	May 20		A 20						May 5
1889				**********		Apr. 21 May 4 Apr. 24 Apr. 24 Apr. 27	May 15 Apr. 26 May 5 May 7 Apr. 30 Apr. 27	Apr. 25 May 4 May 4 Apr. 28 Apr. 28	Apr. 30 May 14 Apr. 26 May 3 May 5 Apr. 27 Apr. 28	May 6 May 15 Apr. 25 May 6 May 2 Apr. 27 Apr. 28	Apr. 29 May 8 Apr. 25 May 3 May 6 Apr. 30 Apr. 27	May 5 May 17 Apr. 25 May 8 May 4 Apr. 30 Apr. 28	Morr 2		May 15 Apr. 28 May 4 May 7 Apr. 25 Apr. 28
1892 1893 1894 1894 1895 1896 1897 1898 1898	June 15 June 15 June 8 June 12 May 31 May 21 June 3 May 29 May 30	May 30 June 3 June 2 May 29 May 28	July 26 July 20 July 24 July 29 July 3 July 26 July 19 July 6	May 18 May 22 May 21 May 5	June 15 June 5 June 4 June 11 May 26 May 28	Apr. 22 Apr. 23 May 2 Apr. 17 Apr. 26 Apr. 22 Apr. 24 Apr. 18	Apr. 26 May 5 Apr. 30 Apr. 27 Apr. 27 May 3 May 8 Apr. 26 Apr. 29 Apr. 25 Apr. 25	Apr. 25 May 4 Apr. 28 Apr. 28 Apr. 30 May 3 May 9 Apr. 27  May 1 May 5 May 5 May 3	May 14 Apr. 26 May 3 May 5 Apr. 27 Apr. 28	May 15 Apr. 25 May 6 May 2 Apr. 27 Apr. 28	May 8 Apr. 25 May 3 May 6 Apr. 30 Apr. 27	Apr. 25 May 8 May 4 Apr. 30 Apr. 28	May 9 Apr. 24 May 3 May 6 Apr. 26 Apr. 28		Apr. 28 May 4 May 7 Apr. 25 Apr. 28 Apr. 29 May 2 May 8 Apr. 20 Apr. 30 Apr. 30
1889 1890 1891 1891 1891 1892 1893 1894 1895 1896 1896 1897 1900 1900 1901 1902 1903 1904 1904 1904 1905	June 15 June 15 June 15 June 18 June 12 May 31 June 3 May 29 May 30 May 26  June 6  June 6  June 12 June 13 June 11 June 11	May 30 June 3 June 2 May 29 May 29 May 29 May 27 May 29 May 23 June 12 May 25	July 26 July 20 July 24 July 29 July 3 July 26 July 19	May 18 May 22 May 21 May 5 May 8 May 2 May 11 May 16 May 7 May 19 May 16	June 15 June 5 June 4 June 11 May 26 May 28 June 9 June 10 June 6 June 3	Apr. 22 Apr. 23 May 2 Apr. 17 Apr. 26 Apr. 22 Apr. 18 Apr. 18 Apr. 29 Apr. 27 Apr. 27	Apr. 28 May 7 Apr. 30 Apr. 27 Apr. 27 Apr. 28 Apr. 29 Apr. 29 Apr. 25 Apr. 25 Apr. 25 Apr. 29 May 2	Apr. 25 May 4 Apr. 28 Apr. 28 Apr. 30 May 9 Apr. 27 May 1 May 5 May 5 May 3 May 3	May 14 Apr. 26 May 3 May 5 Apr. 27 Apr. 28 Apr. 30 May 8 May 9 Apr. 27 May 1 Apr. 27 May 1 May 2	May 15 Apr. 25 Apr. 27 Apr. 27 Apr. 27 Apr. 27 May 2 Apr. 17 Apr. 17 Apr. 25 Apr. 25 Apr. 25 Apr. 25 Apr. 26 Apr. 29 May 2	May 8 Apr. 25 May 3 May 6 Apr. 30 Apr. 27 May 3	Apr. 25 May 8 May 4 Apr. 30 Apr. 28	May 9 Apr. 24 May 6 Apr. 28 Apr. 27 May 3 May 1 Apr. 24 Apr. 24 Apr. 22 May 2 May 3 Apr. 27 May 2 May 3 Apr. 27 May 2 May 2 May 2 May 2 May 2		Apr. 28 May 4 May 7 Apr. 25 Apr. 28 Apr. 29 May 2 May 8 Apr. 20 Apr. 30 Apr. 30 Apr. 27 Apr. 27 Apr. 29

Table 4.—Dates of blossoming at Wauseon, Ohio, for 114 different plants, 1883 to 1912—Continued.

[The numbers following the common names 6efer to the numbers of the list on pp. 26 to 28.]

			<del></del>					·	<del></del>	<del></del>					
Year.	Dog violet (1275).	Long-spur violet (1276).	Pansy (1277).	Periwinkle (1438).	Butterfly weed (1443).	Swamp milkweed (1446).	Common milkweed (1453).	Wild morning-glory (1467).	Garden phlox (1481).	Wild sweet-william (1482).	Wild phlox (1486).	Hafry phlox (1485).	Moss pink (1487).	Corn gromwell (1507).	Red puccoon (1511).
1883	May 9 Apr. 24 May 4 May 3 Apr. 27 Apr. 27		Apr. 18 Apr. 6 Apr. 26 Apr. 15 Apr. 20 Apr. 25 Apr. 24 Apr. 17						June 14 June 14		May 14		Apr. 30		
1891	May 3 May 12 May 8 Apr. 27	Apr. 16	Apr. 8 Mar. 30 Mar. 24 Mar. 17 Apr. 27 Apr. 28 Apr. 22 Apr. 30 Apr. 23 May 8	Apr. 26  Apr. 18 Apr. 15 Apr. 26 May 1 Apr. 28	June 27 July 6 July 2 June 28 June 25 June 10 July 8 June 28 June 27 June 25	July 4 July 13 June 5 July 8 July 9 June 26 July 9 July 5 July 4	June 27 July 6 July 2 June 27 July 1 June 11 July 8 June 25 June 23 June 24	June 24 June 20 June 11 June 12 May 21 June 15 June 1 June 3 June 2	June 9 June 9	May 23 May 31	May 2 May 7 May 3 Apr. 27 May 1 Apr. 27 May 5 May 4 May 1 May 7	May 2 May 7 May 5 Apr. 28 May 2 Apr. 28 May 6 May 4 May 1 May 7		Apr. 13 Apr. 22 Apr. 28 Apr. 29	May 12 May 11 May 3 May 24 Do.
1900	May 2		Apr. 23	May 1	July 2		July 2	June 12				May 7 May 11		May 3	May 28 May 16 May 23 May 30
1908 1909 1910 1911 1912 Average Barliest Latest	Apr. 24 May 12 Apr. 24 May 7 May 6 May 2	May 1 May 6 May 1 May 6 May 1 Apr. 16 May 16	Mar. 31  May 4  Apr. 17  May 17	Apr. 24	July 1 July 5 July 1	July 7 July 13 July 2 July 11 July 7 June 24 July 29	July 1 June 30 July 13 July 2 July 6 June 30 June 11 July 28	June 11 June 16 June 28 July 1 June 6 June 14 May 21	June 30 June 15 May 15 July 14		Apr. 26 May 3 May 2	Apr. 25 May 10 Apr. 21 Apr. 26 May 6 May 3 Apr. 21	May 11 May 12 Apr. 9 Apr. 30 May 4 May 4 Apr. 9 May 19	Apr. 27 Apr. 19 May 19	May 18 May 1 June 4 May 18 May 1 May 4
Latest	May 12	May 16	Мау 8		June 10 July 19	July 29	July 28	July 7	July 14		Apr. 20 May 14	Apr. 21 May 11	May 19	May 19	June 4
Year.	ilue vervsin (1519)	kullesp (1532).	atnip (1541).	elf-heal (1543).	(otherwort (1547).	ittersweet (1605).	imson weed (James- town weed) (1609).	fullein (1610).	hlver's root (1640).	ommon plantain (1675).	easel (1739).	)andelion (1762).	rickly lettuce (1766).	Wild lettuce (1767).	White vervain (1518)
Year.  1823 1884 1885 1886 1887 1888 1889	Blue varvain (1519).	Skullesp (1532).	Ostnip (1541).	Self-heal (1543).	Motherwort (1547).	Bittersweet (1605).	Jimson weed (James- town weed) (1609).	Mullein (1610).	Culver's root (1640).	Common plantain (1675).	Teasel (1739).	May 8 Apr. 30 May 12 Apr. 21 May 4 Apr. 25	1		White vervain (1518).
1883 1884 1885 1886 1887 1888	July 27 July 16 July 12 July 11 July 11 July 11			July 14 July 16 July 14 July 20 July 3 July 3 July 12 June 29	June 23		July 3 July 14 July 18 July 13 Aug. 5	July 14 July 11 July 1 July 9 June 27 June 22 July 9	July 12 July 9 July 10 July 12 June 20 July 22 July 8 July 19	June 29 July 1 July 2	l	May 8 Apr. 30 May 12 Apr. 28 May 1 May 4 Apr. 24 Apr. 25 Apr. 26 Apr. 24 May 3 Apr. 19	July 13 July 26 July 14 July 10 July 8 June 20 July 20 July 17 July 6	July 13 July 26 Aug. 1 July 27 July 26 June 30 July 21 July 21	July 28 July 17 July 13 July 20 July 20 July 3 July 5
1883 1884 1885 1886 1887 1888 1890 1891 1892 1893 1894 1895 1896 1897 1898	July 27 July 16 July 12 July 11 June 24 July 22 July 19 July 6 July 5	July 14 July 19 July 13 July 13 July 25 July 25 July 25 July 25 July 18 July 6	July 2 July 7 July 7 July 2 June 29 June 22 June 28 June 24	July 14 July 16 July 14 July 20 July 3 July 12 June 29 July 6	June 23		July 3 July 14 July 18 July 13 Aug. 5 June 26 June 26 July 4 June 16 June 17	July 14 July 11 July 1 July 9 June 27 June 22 July 9 July 6 June 26 July 10	July 12 July 9 July 10 July 12 June 20 July 22 July 8 July 19	June 29 July 1 July 2 July 1 July 5 June 20 June 28 July 6  June 30  July 1 July 14 July 14 July 13 June 28 July 24	July 12 July 25 July 13 July 19 July 19 July 15 July 28 July 28 July 29 July 28	May 8 Apr. 30 May 12 Apr. 25 Apr. 26 Apr. 26 Apr. 23 Apr. 24 Apr. 24 Apr. 25 Apr. 26 Apr. 27 Apr. 29 Apr. 20 Apr. 27 Apr. 20 Apr. 20 Apr. 20 Apr. 20 Apr. 20 Apr. 20 Apr. 10	July 13 July 26 July 14 July 10 July 12 July 20 July 17 July 6	July 13 July 13 July 13 July 17 July 26 June 30 July 21 July 21 July 21 July 11  Aug. 1 July 8 July 25 July 25 July 25	July 28 July 17 July 12 June 20 July 14 July 5 July 6

TABLE 4.—Dates of blossoming at Wauseon, Ohio, for 114 different plants, 1883 to 1912—Concluded.

The numbers following the common names refer to the numbers on the list on pp. 26 to 28.]

Year.	Great ragweed (1788).	Common ragweed (1790).	Cocklebur (1794).	Ironweed (1797).	Boneset (1806).	Philadelphia flea- bane (1898).	Sweet scabious (1899).	Daisy fleabane (1900).	Coneflower (1931).	Common sunflower (1937).	Wild sunflower (1947).	Swamp beggsr- ticks (1964).
1883 1884 1885 1886 1887 1888 1889 1890 1891 1892 1893 1893 1894 1895 1895 1897 1898 1998 1900 1900	July 27  Aug. 3  Aug. 22  Aug. 18  Aug. 22  Aug. 2  Aug. 2	Aug. 3 Aug. 1 Aug. 8 Aug. 15 July 23 Aug. 14 Aug. 8 July 30	Aug. 5 Aug. 15 Aug. 15 Aug. 5 Aug. 6 Aug. 28 Aug. 24	Aug. 3 July 31 July 30 July 20 July 29 July 7 Aug. 4 Aug. 2 July 27	Aug. 11 Aug. 4 July 30 July 28 Aug. 8 July 28 Aug. 3 July 29 Aug. 3	June 2 May 30 June 1 May 13 May 26 May 17 May 31 May 22 May 11 May 21	June 12 June 12 June 9 June 9 June 25 May 25 May 15 June 8 May 24 May 14 May 14 May 19	June 12 June 12 June 14 May 12 June 3 June 8 June 8 June 7 May 31	June 19 June 22 July 1 July 10 June 26 June 23 June 23 June 20 June 24  June 16 June 11 July 7	July 2 July 29 July 12	July 23 July 15 July 17 Aug. 15 July 2 July 20 July 16 July 6	Aug. 22 Aug. 20 Aug. 30 Aug. 30 Sept. 10 Sept. 3
1910 1911 1912 Average Earliest Latest	Aug. 14	Aug. 12 Aug. 6 July 23 Aug. 15	Aug. 14 Aug. 5 Aug. 28	Aug. 6 Aug. 16 July 31 July 30 July 7 Aug. 16	July 28 July 30 Aug. 2 July 28 Aug. 11	May 31 May 30 May 11 June 27	June 28 June 14 June 22 June 1 June 14 June 28	June 30 June 30 June 17 June 17 June 10 May 12 June 30	June 28 July 4 June 26 June 9 July 23	Aug. 3 Aug. 3 July 8 July 11 July 18 July 2 Aug. 3	July 13 July 10 July 17 July 2 Aug. 15	Aug. 30 Aug. 2 <sub>9</sub> Aug. 2 <sub>0</sub> Sept. 1 <sub>0</sub>
Year.	Spanish needles (1968).	Yarrow (1979).	Dog fennel (1980).	Tansy (1990).	Fireweed (1999).	Burdock (2009).	Common thistle (2012).	Swamp thistle (2017).	Canada thistle (2018).	Carnation.	Sweet-william.	Verbena.
Year.  1883 1884 1884 1885 1886 1887 1888 1889 1890 1890 1891 1891 1892 1892 1892 1893 1894 1895 1896 1990 1901 1901 1902 1903 1904 1903 1904 1907 1908	Aug. 20 Aug. 17 Aug. 25 Aug. 31 Aug. 26	June 13 June 14 June 19 June 21 June 27 June 27 June 27 June 27 June 8	June 17 June 20 June 22 June 14 June 12 June 29 June 29 June 21 June 15	Aug. 3 Aug. 4 July 19 July 31 July 16 July 29 July 20	Aug. 24 Aug. 20 July 28 Sept. 1 Aug. 12	Aug. 7 July 27 July 47 July 17 July 30 June 12 July 30 July 31 July 30 July 8	July 1 July 6 July 6 July 10 July 6 July 10 July 6 July 8 July 9 July 9 July 9	Aug. 4 Aug. 10 Aug. 15 Aug. 5 July 26 Aug. 4	July 7	June 26 June 17 June 20 July 2 June 28 June 30 June 29 July 2 June 23 June 23 June 27 June 27 June 26 June 27 June 27 June 28 June 28	June 8 June 8 June 8 June 8 May 30 June 18 June 18 June 3 June 9 June 8 June 9 June 19	

Table 5.— Dates on which harvesting began, for wheat and oats, at Wauseon, Ohio, 1870 to 1912, inclusive.

Year.	Wheat harvest began.	Oats harvest began.	Year.	Wheat harvest began.	Oats harvest began.	Year.	Wheat harvest began.	Oats harvest began.	Year.	Wheat harvest began.	Oats harvest began.	Year.	Wheat harvest began.	Oats harvest began.
1870	July 8 July 3 July 19 July 11 July 9 July 9 July 7	July 29 July 2 July 23 July 29 July 31do July 27 July 31	1884	July 11 July 13 July 10 July 14 July 1 June 28 July 10 July 13	Aug. 4 Aug. 14 July 25 Aug. 4 July 22 July 16 July 31 Aug. 3	1891 1892 1893 1894 1895 1895 1896 1897 1898 1899 1900	July 5 July 2 July 1 June 26 June 23 July 8 July 1 July 4	Aug. 4 July 21 July 18 July 18 July 13 July 24	1902 1903 1904 1905	July 9 July 6 July 8 July 4 July 2 July 16 June 27 July 7	July 25 do July 28 July 20 July 23 Aug. 2 July 28 do	l .	June 25 July 12 July 6	July 26

Table 6.—Daily mean temperatures (°F.), Wauseon, Ohio, 1883–1912.  $[m=\frac{1}{2}(7^{a}+2^{p}+9^{p}+9^{p}).]$ 

											fm-	2(,	ZP+YP+YP).j												
Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Day.	Jan.	Feb.	Mar.	Apr.	Мау.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
						18	88												18	85					
1	20 12 18 15 18	4 14 32 17 7	47 37 25 21 23	28 30 36 47 50	51 60 56 54 47	56 68 68 65 72	72 78 80 76 78	71 67 59 60 60	68 69 55 62 53	47 47 45 46 50	37 36 46 48 60	44 23 25 38 39	1 2 3 4 5	12 9 18 28 34	13 14 34 32 7	30 26 36 33 28	41 44 28 35 47	46 46 44 47 58	66 67 69 69 64	67 65 68 73 75	69 67 64 67 63	52 53 59 54 53	67 66 51 41 41	36 38 34 47 51	36 36 31 37 18
6 7 8 9 10	25 24 11 3 9	12 16 17 14 11	31 15 20 37 28	35 33 43 53 58	57 67 57 60 58	68 68 69 66 63	75 68 60 61 71	62 61 62 67 67	57 62 44 48 48	53 49 60 72 63	42 39 49 54 46	42 52 33 35 34	6 7 8 9 10	39 32 40 33 27	7 24 22 14 -13	26 23 12 34 21	45 54 32 28 39	55 42 45 41 38	69 77 55 59 62	74 74 79 75 67	64 67 70 78 70	58 61 66 57 54	42 43 40 42 49	59 53 40 38 36	20 20 30 19
11	6 16 22 5 11	26 16 26 34 38	22 33 35 48 24	48 46 47 70 54	47 47 48 54 51	63 68 60 61 67	74 72 72 74 70	67 70 62 60 63	53 57 64 70 71	54 58 53 43 40	38 29 39 18 17	37 35 45 25 16	11	41 22 12 19 24	- 6 - 8 - 8 30	21 22 24 37 21	37 34 28 33 39	51 51 58 61 64	67 72 74 76 72	68 73 73 69 72	69 75 72 58 60	59 71 68 69 60	54 55 52 49 51	53 62 36 28 31	14 19 30 21 20
16 17 18 19 20	22 32 23 29 23	51 19 20 29 31	27 42 34 13 10	46 54 62 46 47	53 52 65 68 55	76 74 74 65 65	77 66 62 66 66	66 72 72 79 71	67 56 57 61 64	37 47 56 56 37	20 37 43 43 54	16 13 20 15 17	16	18 - 6 - 7 - 1	- 8 - 3 - 1 - 2	9 11 17 10 4	39 38 42 56 64	67 69 65 54 61	60 63 63 69 67	77 74 70 80 82	62 66 73 66 66	54 62 66 62 61	50 59 50 56 41	34 46 49 36 36	37 32 33 28 27
21 22 23 24 25	- 2 -10 - 5 16 9	27 28 21 35 26	13 21 22 24 31	49 38 36 34 42	44 38 53 63 70	66 71 74 70 64	73 81 74 65 68	71 76 62 62 64	60 63 61 51 50	38 36 40 42 47	60 44 46 42 52	16 11 23 28 24	21	- 3 - 8 16 28 19	- 2 5 12 22 25	8 10 19 29 28	66 67 71 53 44	66 64 65 65 64	69 54 60 67 71	83 77 76 78 78	75 67 71 68 60	67 57 46 54 66	35 42 38 40 45	35 30 33 32 29	40 45 44 29 23
26	21 32 25 32 35 13	18 25 34	33 31 28 32 33 30	50 54 39 37 47	54 56 54 58 53 52	58 63 62 66 65	70 71 65 60 62 65	62 63 62 62 62 65	48 58 48 55 44	43 42 56 54 50 42	39 28 31 38 33	32 24 17 34 37 31	26	- 4 0 - 9 6 22 23	30 29 39	42 37 34 31 36 40	52 56 47 52 48	66 61 60 63 63 66	74 71 70 59 58	67 73 80 81 78 79	56 53 59 64 63 59	65 65 69 68 67	52 52 49 41 29 32	27 29 29 34 36	21 36 84 37 43 34
				!		18	84			!!					!				18	86	1	l	<u> </u>		
1 2 3 4 5	21 14 - 2 -10 - 9	20 32 27 26 36	13 14 12 9 17	39 33 38 45 40	64 46 56 59 65	65 72 70 70 71	73 74 71 72 69	71 76 72 61 58	64 71 74 78 80	63 70 71 73 77	45 36 40 39 34	19 23 36 40 48	12345	36 36 50 35 23	13 2 2 - 5 8	15 18 27 27 28	31 28 30 30 32	49 56 59 61 57	70 68 57 60 62	69 68 72 76 79	70 62 63 65 62	55 63 69 71 72	41 43 48 50 52	52 56 49 45 43	15 16 17 11
6 7 8 9 10	- 9 3 13 12 28	31 27 32 30 24	26 23 21 22 23	39 42 34 36 37	57 56 53 56 55	. 68 68 74 64 54	64 66 68 67 71	67 62 56 58 62	77 76 78 81 81	64 66 50 45 51	32 42 37 47 51	50 37 33 26 32	6 7 8 9 10	13 12 12 13 - 5	23 25 38 42 44	32 33 28 28 28 29	29 33 36 45 45	61 51 60 54 61	70 67 63 66 65	82 81 70 72 76	65 68 70 72 74	74 72 72 73 66	55 58 60 60 63	30 27 32 34 46	16 22 27 82 82 88
11	16 14 36 24 11	27 34 32 10 17	48 32 38 29 32	40 46 46 59 51	54 59 51 56 57	63 68 61 60 63	74 73 65 69 66	64 72 72 74 74	68 62 58 60 73	64 62 56 43 50	41 38 40 40 42	29 27 25 31 22	11 12 13 14 15	- 1 2 9 19 27	45 42 35 33 24	35 35 29 31 47	41 53 54 61 59	63 65 66 68 50	65 74 72 76 80	73 71 75 66 67	77 72 76 68 68	64 56 60 61 66	61 63 67 58 50	34 29 29 36 33	86 41 86 80 14
16	15 26 29 12 3	34 36 39 40 23	39 45 34 36 36	36 39 45 48 41	50 59 67 57 61	73 76 73 72 77	64 65 72 66 68	77 77 76 78 80	55 62 58 58 54	54 53 46 61 63	47 33 28 25 34		20	28 14 24 15 24	11 32 39 24 18	30 34 42 57 58	62 64 63 63 60	48 53 59 62 64	78 69 58 64 70	69 69 65 69 67	78 68 62 66 73	56 56 59 58 50	41 56 50 59 64	36 46 26 30 35	21 26 18 18
21	25 17 - 6 - 4	25 29 17 24 32	38 45 50 47 48	39 41 46 51 55	68 68 70 63 63	72 79 79 77 62	69 76 78 74 75	72 65 65 63 70	58 66 66 66 60	65 45 30 39 36	40 46 35 13 27	22 12 8 10 9	21	23 10 - 3 14 31	24 32 29 39 24	35 30 29 45 43	64 65 70 61 56	68 71 70 60 52	68 64 69 67 64	68 67 72 75 82	81 68 70 67 71	53 62 64 71 74	47 52 53 60 43	34 45 40 22 20	27 18 30 14 21 4 22 7 11 19
26	12 20 32 34 39 23	28 24 0 5	42 49 45 40 35 38	56 60 57 48 58	60 54 46 52 55 63	60 66 69 72 78	74 74 68 70 72 67	65 69 66 70 63 63	66 70 66 69 71	45 49 35 34 45 46	22 33 30 28 19	8 24 39 46 51 30	25	29 30 27 22 16 11	15 15 15	39 29 33 46 38 38	62 54 58 58 46	61 60 63 68 67 66	66 66 66 69 68	78 74 80 77 70 77	73 78 75 74 62 56	70 68 51 50 49	36 37 38 41 46 48	23 29 33 28 25	11 10

Table 6.—Daily mean temperatures (°F.), Wauseon, Ohio, 1888–1912.—Continued.  $[\mathbf{m-\frac{1}{2}}\,(7^a+2^p+9^p+9^p).]$ 

Day.	Jan.	Feb.	Mar.	Apr.	Мау.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Day.	Jan.	Feb.	Mar.	Apr.	Мау.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
						18	87												18	89					
1	6 - 2 - 2 15 11	11 24 22 16 20	41 44 28 25 25	34 42 62 30 28	61 70 59 59 54	62 58 66 74 71	78 80 80 74 74	78 77 79 79 78	74 68 62 56 65	56 61 59 47 46	41 49 54 41 38	23 32 43 42 28	1 2 3 4 5	31 33 34 34 34	19 30 24 35 12	32 33 35 31 35	37 43 40 35 31	46 40 47 57 64	48 50 56 52 56	76 78 68 66 71	72 68 70 68 63	72 69 74 73 63	55 49 55 46 49	47 50 42 36 29	33 44 28 28 38
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11	11 26 28 27 24	24 13 21 32 36	33 40 28 23 26	61 54 44 56 54	66 65 65 58 66	67 66 69 72 75	75 78 83 76 83	77 69 71 64 70	67 78 78 63 57	40 46 45 40 43	35 37 43 44 40	35 29 32 32 29	11 12 13 14 15	24 25 32 28 32	22 9 10 18 27	35 40 42 36 46	51 45 38 40 44	67 60 59 62 63	64 66 71 72 72	71 75 77 63 65	61 70 67 66 62	67 66 69 71 68	59 57 44 40 44	43 49 51 37 31	40 44 40 36 36
16. 17. 18. 19. 20.	26 11 - 1 26 40	32 34 34 25 25	29 24 29 32 38	38 37 32 42 50	66 57 58 64 74	78 77 76 78 75	84 86 76 74 76	68 65 71 66 69	67 56 64 65 66	54 55 44 43 50	43 34 38 34 22	26 26 30 36 34	16 17 18 19 20	50 32 24 20 27	44 30 20 8 5	45 47 44 40 36	48 57 61 65 60	71 78 77 60 55	74 69 72 73 72	68 74 73 74 67	60 61 66 72 74	56 52 50 55 53	50 52 43 52 87	30 34 40 46 46	
21 22 23 24 25	28 51 45 32 36	26 32 31 25 26	35 26 32 41 30	54 55 39 42 41	72 73 67 63 59	64 62 55 60 67	75 74 65 70 72	68 70 64 58 60	73 54 44 47 53	35 41 46 36 28	18 33 37 39 38	14 10 21 14 17	21 22 23 24 25	15 26 36 33 34	32 14 - 2 9 15	38 39 43 51 36	51 45 58 59 44	44 46 52 57 50	64 60 58 61 67	73 74 69 65 65	66 66 69 69 71	45 49 59 66 54	37 41 33 42 48	47 38 37 45 30	39 34 36 57 46
26. 27. 28. 29. 30.	8 27 37 34 14 6	29 15 21	28 26 20 17 26 31	41 48 52 50 54	56 60 64 68 60 61	63 65 70 77 77	76 81 80 79 82 78	57 58 60 66 67	55 52 60 63 58	31 36 49 32 30 40	52 32 15 16 22	17 31 5 10 12 . 83	26		31 31 29	47 42 35 30 32 33	48 53 47 43 43	58 52 50 41 40 44	70 69 71 71 72	72 78 73 64 67 69	72 72 70 69 75 72	47 49 58 59 56	44 39 40 38 43 46	30 35 23 23 17	35 83 37 43 23 30
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3	20 16 19 32 29	28 27 28 32 26	34 38 23 16 18	44 37 86 45 59	35 44 55 56 53	56 53 56 61 72	68 70 76 78 77	69 73 84 78 75	58 64 67 68 58	58 59 59 54 54	66 59 43 51 61	33 31 34 37 32	1 2 3 4 5	50 38 29 30 56	30 27 43 58 34	19 20 26 20 12	83 43 53 43 42	45 54 63 53 45	70 71 78 79 75	74 72 73 66 66	76 83 86 74 69	63 67 73 74 70	57 59 58 61 64	44 39 32 34 50	26 19 23 19 21
6	37 34 27 21 12	22 26 5 - 2 12	22 27 29 37 41	45 43 38 50 46	66 50 59 60 65	66 57 67 72 66	76 75 74 63 72	75 73 72 64 69	61 64 68 65 67	46 54 45 38 44	45 40 51 46 40	29 37 36 36 36	6 7 8 9 10	35 30 30 35 40	25 28 20 22 25	14 15 22 31 36	55 50 62 44 33	38 46 52 56 43	66 60 64 66 69	73 80 75 66 65	72 70 78 73 63	74 74 62 59 60	58 53 57 58 60	56 54 39 38 37	27 19 17 27 35
11	22 16 20 6	15 21 37 25 3	25 18 19 25 39	47 36 45 46 39	70 47 41 40 47	59 66 71 73 78	78 56 61 64 64	69 58 62 72 74	75 61 52 57 67	46 41 46 50 48	38 40 44 52 48	31 25 18 23 36	11	51 54 22 27 34	36 28 36 38 33	51 42 38 29 18	51 65 65 44 39	47 59 57 54 53	70 67 70 70 72	70 76 78 80 78	64 72 72 72 70	63 64 49 54 56	53 57 63 48 52	38 39 43 44 46	33 20 28 33 30
16. 17. 18. 19. 20.		27 34 37 42 29	35 27 34 55 41	43 50 44 40 37	47 52 49 47 54	79 82 80 78 81	68 73 74 70 69	78 73 68 72 69	59 58 58 58 60	48 42 43 47 39	30 29 33 36 27		16		40 50 35 31 22	26 33 37 34 46	43 46 42 36 45	54 48 58 53 48	76 71 72 71 68	73 77 69 65 65	73 66 63 64 63	54 56 57 58 48	49 48 48 47 42	45 48 48 41 40	32 31 28 26 38
22 23 24 25	0 8 16 10 24	28 33 38 38 28	24 5 16 13 25	43 41 41 41 48	58 62 64 62 60	78 77 76 73 70	76 71 72 72 75	69 58 64 68 72	61 56 58 57 60	36 39 41 48 51	30 29 30 33 32		21	15 13 23 18 36	18 28 35 45 42	48 87 30 40 47	54 64 61 45 44	53 70 66 65 62	72 79 76 80 80	65 69 74 72 70	63 57 56 60 63	53 57 60 51 55	42 43 48 50 45	46 36 37 44 35	39 39 29 24 20
26 27 28 29 30 31	15 8 7 24 31 30	11 7 22 37	41 34 33 40 46 40	63 66, 68 64 42	65 64 65 63 61 52	69 65 65 61 72	73 72 72 75 79 79	78 62 62 70 73 63	54 48 42 44 50	55 56 42 46 45 61	33 32 34 36 33	42 28 25 25 32 32	26	44 35 29 39 40 44	32 35 25	33 33 29 32 29 31	44 48 53 52 57	58 60 65 72 76 66	80 75 79 80 77	69 75 78 78 82 84	63 64 68 62 57 60	58 45 46 51 54	42 39 40 37 36 36	28 29 30 36 33	39 39 29 24 20 23 25 24 25 34 42

TABLE 6.—Daily mean temperatures (°F.), Wauseon, Ohio, 1883-1912—Continued.

[m=\frac{1}{2}(7a+2p+9p+9p).]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Day.	Jan.	Feb.	Маг.	Apr.	Мау.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
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1 2 3 4 5	48 22 13 20 27	34 39 11 8 32	12 20 24 18 19	43 41 35 31 33	55 54 49 44 42	74 67 72 52 57	64 69 63 64 67	72 66 63 69 74	63 69 61 59 59	60 73 74 61 48	37 28 26 37 38	35 41 52 38 39	1 2 3 4 5	31 20 7 2 15	26 18 14 6 30	29 34 25 18 22	45 48 55 50 56	56 45 46 45 46	66 68 72 74 71	68 71 67 68 71	68 72 69 74 79	68 60 62 73 75	52 58 57 52 58	55 51 38 38 40	9 14 21 16 24
6 7 8 9 10	18 13 19 28 31	36 34 32 31 24	22 27 34 26 37	31 36 38 38 55	48 52 61 68 65	53 58 63 73 75	69 59 57 65 69	74 79 81 86 86	62 57 55 57 64	52 44 46 47 50	39 51 56 57 52	29 23 34 38 39	6 7 8 9 10	12 11 15 14 0	35 5 8 32 29	35 38 44 42 42 44	36 68 54 47 42	51 50 53 56 64	60 66 69 72 71	64 82 74 73 69	66 68 70 72 73	70 77 63 · 66 70	56 59 66 65 63	47 49 50 46 45	13 14 31 35 21
11 12 13 14	31 28 22 22 23	29 35 33 28 42	46 32 22 11 27	40 46 59 58 47	53 53 57 58 66	70 65 67 75 78	72 76 79 73 60	80 70 71 67 68	69 73 63 62 71	48 43 51 50 42	42 37 30 33 41	33 35 38 48 48	11	0 8 - 1 - 4 - 6	27 24 28 39 30	44 36 50 26 17	47 63 51 34 36	71 58 51 59 55	65 67 67 72 71	73 80 81 80 76	70 65 64 66 72	70 70 70 76 76	65 61 58 45 41	43 50 41 34 23	25 21 14 30 50
16	22 26 26 27 36	49 39 22 28 45	28 34 39 29 33	47 61 64 62 53	45 50 58 68 69	80 71 66 69 71	70 74 67 67 68	76 72 76 79 77	73 78 80 75 74	44 53 50 40 41	17 18 33 38	30 20 21 26 31	16 17 18 19 20	- 1 14 4 12	25 16 22 14 4	22 27 27 29 40	43 48 44 41 43	48 51 56 63 72	71 75 76 80 79	72 74 72 72 72 68	68 69 71 65 68	57 60 70 70 63	39 43 47 52 50	32 48 30 27 30	28 24 29 21 20
21 22 23 24 25	36 32 32 27 32	33 27 44 52 29	35 36 40 36 34	64 66 56 47 51	69 49 51 60 64	75 71 72 75 78	73 80 71 72 66	71 67 60 55 59	73 71 76 74 76	43 38 40 43 54	51 50 39 28 28	44 45 36 38 49	21	20 25 28 26 20	15 20 27 28 18	41 32 54 42 31	37 35 38 45 41	67 75 48 61 59	75 66 68 75 73	74 68 70 78 79	65 68 74 75 72	76 60 56 53 44	47 52 58 46 40	35 31 22 18 16	37 45 50 56 45
26 27 28 29 30 31	28 35 32 36 34 39	19 21 11	33 34 34 44 43 42	58 59 52 56 63	51 52 57 54 61 60	74 63 72 73 66	64 67 69 66 68 69	67 61 53 63 59 62	71 75 74 55 55	49 36 37 55 59 54	35 26 20 9 20	21 25 38 33 32 38	26	19 18 40 22 24 29	26 37 30	29 33 30 40 47 58	53 46 52 42 42	49 52 60 62 64 62	72 71 69 67 73	71 69 75 75 78 76	75 77 71 61 57 64	46 49 45 53 48	49 41 37 32 35 46	31 39 31 36 30	24 36 42 31 22 28
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1 2 3 4 5	50 22 18 22 12	39 35 33 31 25	25 25 35 34 32	63 61 55 65 56	61 63 67 56 50	70 70 57 66 67	61 65 62 62 65	70 70 76 67 67	55 63 71 73 61	55 52 67 54 38	52 51 44 35 29	27 31 37 26 29	1 2 3 4 5	33 41 46 37 33	20 27 28 13 24	41 37 43 56 61	38 35 47 45 36	66 56 65 60 60	55 63 71 63 52	75 72 72 69 69	74 72 57 63 66	68 76 78 77 70	51 65 58 47 48	49 49 41 42 39	36 34 29 30 36
6	20 10 12 - 2 7	27 41 31 22 30	32 37 34 38 14	45 54 39 28 32	58 47 46 53 56	70 67 66 68 67	67 67 72 73 75	70 75 81 82 75	56 55 61 70 69	50 53 44 47 52	44 43 25 29 33	42 48 29 31 25	6 7 8 9 10	31 18 22 28 30	38 38 38 45 31	36 34 36 41 54	41 39 41 36 37	61 59 55 61 64	55 61 69 73 75	68 65 67 69 73	75 78 82 76 67	70 76 74 77 60	48 58 42 44 47	36 33 33 31 28	36 41 48 34 39
11	25 22 18 18 4	21 12 23 31 15	25 38 24 18 22	33 38	47 49 53 55 60	74 79 79 72 76	77 78 75 74 71	72 69 69 71 74	70 67 57 54 58	56 56 55 59 64	34 31 47 39 41	21 27 37 34 29	11	28 16 36 42 42	18	40 44 41 34 43	36 46 51 53 51	57 63 66 63 55	81 79 75 75 76 79	74	69 73 76 74 71	56 62 71 76 72	46 45 44 37 47	21 26 33 33 48	46 37 33 38 46 41
16	12 23 17 2 4	14 28 34 33 32	1		61 64 62 48 50	80 75 75 71 74	63 68 73 75 75	75 76 80 66 67	56 58 65 58 58 56	59 55 61 49 50	45 47 32 27 31	32 31 31 27 15	16 17 18 19 20	40 44 40 30 47	27 22 17	i	60 60 60 49	69 72 47 38 44	78 75 65 67 75	82 87 71		61 64 61 56 61	60 48 49 64 62	40 27 32 19 38	41 32 30 84 43
21 22 23 24 25	29 25 32	35 33 40 36	1	1	52 45 52 59 59	75 75 75 72 65	75 79 82 81 84	68 72 72 75 68	66 68 73 72 66	49 50 39 41 40	1	1	21	37 28 28 12 8	1	49 36 36 23	42 43 47 53 51	1	78 80 83 79 77	1		1	56 56 52 51	31 49 35 33 28	31 29 36 26 22 11 5 18 19 17
26	7 11 32 35 30 31	34 26 37 35	46 39 38 42 41 48	1 51	53 54 58 63 70 74	67 61 67 66 60	81 81 82 71 68 71	67 66 69 72 64 55	53 57 62 63 63	35 41 48 38 38 50	28 31 33 32 31	12 16 18 14 24 31	26	.1 29		. 27	58 64 68 55 68	68 57 46 52 45 48	74 77 74 77 81	81 82 78 75 79 80	65 66 69 76 65 65	55 59 64 65 56	48 44 50 55 41 41	44 36 19 28 34	115 18 19 17

Table 6.—Daily mean temperatures (°F.), Wauseon, Ohio, 1883-1912.—Continued.  $[\mathbf{m-1}\ (7^{\mathbf{a}+2^{\mathbf{p}+9\mathbf{p}+9\mathbf{p}}}).]$ 

Day.	Jan.	Feb.	Mar.	Apr.	Мау.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Day.	Jan.	Feb.	Mar.	Apr.	Мау.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
						189	95												18	97		1			
123	17 25 27 13 23	12 4 15 3 - 4	31 26 28 6 16	34 34 36 44 58	61 68 73 76 76	82 81 84 75 63	67 68 65 71 74	67 70 73 74 78	59 67 76 66 72	48 51 56 52 51	30 37 47 51 56	34 15 9 19 14	1 2 3 4 5	49 52 56 29 15	21 30 29 26 32	34 27 25 31 41	42 43 45 53 45	38 41 46 55 61	54 67 65 55 62	76 79 85 86 82	71 76 82 72 67	67 65 64 66 70	69 55 57 57 68	49 40 45 51 48	28 24 31 32 26
6. 7. 8. 9.	40 33 20 19 29	- 2 - 1 0 8 5	25 32 27 35 27	55 54 47 45 38	67 64 68 71 77	57 63 71 72 78	76 79 76 63 64	68 71 76 72 83	72 66 65 75 78	55 53 41 35 50	58 62 44 35 28	20 33 23 17 24	6 7 8 9 10	1	35 32 30 27 27	24 27 43 53 38	41 39 41 32 39	64 56 59 66 62	64 50 56 60 63	74 78 83 85 82	65 71 70 68 70	68 72 78 77 76	61 48 60 46 52	40 42 43 38 44	31 30 86 50 52
11 12 13 14 15	24 5 8 8 26	5 6 18 24 18	22 32 29 9 14	41 50 41 42 46	51 43 43 39 42	77 72 65 75 68	69 78 68 75 74	75 72 72 78 81	80 78 62 58 68	51 46 51 46 43	28 30 37 48 39	29 14 10 24 24	11 12 18 14 15	26 18 24 25 28	25 26 29 32 29	29 27 29 31	33 41 51 42 50	63 60 57 49 52	69 66 78 75 81	68 65 59 68 70	68 65 69 71 70	72 76 80 75 83	64 52 54 74 78	35 34 34 41 60	36 38 40 37
16. 17. 18. 19.	23 14 33 26 34	19 26 28 25 29	22 31 36 32 30	42 47 47 54 58	48 52 57 50 41	73 76 77 69 65	80 75 76 79 82	77 79 75 70 66		47 43 55 36 32	40 40 39 31 24	33 44 48 55 53	16 17 18 19 20	34 40 20 16 30	36 37 28 30 38	27 37 52 49 47	38 40 55 33 35	56 59 64 69 64	68 73 65 70 60	70 71 74 76 77	64 55 63 59 58	71 54 61 54 47	64 43 51 64 55	33 29 32 44 52	30 16 13 16 26
21 22 23 24 25	32 18 12 11 20	27 23 19 35 37	30 31 48 54 41	62 55 51 65 69	46 55 61 66 65	72 72 76 74 82	79 75 67 69 72	66 73 81 72 74	53 56	40 45 34 42 41	23 32 32 31 34	38 39 41 46 47	21		32 34 28 27 19	47 46 84 31 29	67	49 62 56 51 50	57 68 74 75 69	74 75 72 73 80	66 61	1	50 43 50 46 48	44	9 5 26
26	. 16 2 2 2 14 2 7	33 40 52	51 39 41	66	82	73 72 70 67 66	73 66 68 75 64 63	67 74 73 67 72 63	55 44 42	57 48 31 29 30 37	26 27 34 35 30	25 24 31 30 22 15	26 27 28 29 30	- 7 1 6 14 11	14 11 21	. 46	49 48 63 58 48	53 56 49	68 64 70 78 78	72	61	64	52 57 55 42 44 49	22	18 34
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1. 2. 3. 4	20 29 3 3	39 32 32 31 31	26 26 26	30	62 66 66 69 63	59 64 72	79 77	69 74 78	63 57	47 50	58	14 14 25 30 43	1 2 3 4 5	26	1 7 7 30 26	26	39 33 33 27 28	63 58 45	68 67 69	83 79 69	69 66	82 84 78	68 73 77 68 61	44 44 58	34 32 33 33 25
6. 7. 8. 9. 10.	14 18 23 32	32 30 30 22 22	26	37 35 37 42	62 66 73 75	77 73 66 62	69 66 68 61	80 78 88	59 5 63 70	39	35 30 27	40 36 36 41 41	6 7 8 9 10	30	24 36 42 43 49	39 47 52	38	55 56 61	.   73	75	73 70 66 71	56 60 59 54	53	44	18 3 13 3 14 3 15
12 13 14 15		20 20 20 20 20 20 20 20 20 20 20 20 20 2	1 12	66 2 68 2 68	71 68 67	65 65 69	77 79 77	7	4 70 1 66 4 69	50 48 50	36 27 36	40 47 34 32 25	14	36 47 33 32 31	34 38 32	40	54	53 54 2 60 3 60	69 1 70 1 72 1 59	70 2 80 9 81	7 67 0 68 0 70 5 70	65 69 68	43	3: 3: 3: 3: 3: 3: 3: 3: 3: 3: 3: 3: 3: 3	1 18 6 11 7 8 2 18
16 17 18 19 20	25 35 36	2 2 2	8 23 7 3	9   5	67 68 68 68 58 58	69	64	6 6 6	8 65 4 63 0 55 8 47 5 50	37 37 40 43	61 52 52 31	1	19 20	∷ 3	Į	5	3 4	2 6	1 -		8 74 6 76 8 65 6 67	7 58	5	8 4 5 4 0 4 6 4	4 32 7 32 2 32 1 36
21 22 23 24 25		9	9 3 9 3 6 2 4 3 9 4		1	1	1	6 6 6 6 6 6	9 50 1 41 5 40 5 50 7 60	1 38 3 38 3 38	36 30 8 46 3 43 56			34 35 36 31 31 31		1		1	1	- 1			1	- 1	4 38 2 38 6 34 2 24 4 30
26. 27. 28. 29. 30. 31.	2	7 3 5 4 6 3 6 2 7	8 3 9 3 8 4 9 5	0 6 0 6 9 6 4 5	2 6 6 6 8 5 9 6		71 72 73 75 75 75 75 75 75 75 75 75 75 75 75 75	6 6 6 6 7 6 6 7 6 6 7 6 6 7 6 6 6 7 6 6 6 7 6 6 6 7 6 6 6 7 6 6 6 7 6	1 6 0 5 2 5 5 5 0 5	5 5 5 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	64 5 37 4 21 8 19 4 16	30 22 31 36 40	26 27 28 29	2	ß I	] 8	3 4 2 4 5 5 7 5 4 5	8 6 9 6 1 6 4 6 9 5	2 7 8 7 5 6 1 7 5 8	5 7 3 7 5 7 5 7	4 6 5 7 7 5 7 8 8	5 64 9 55 1 66 4 67 7 7	3 3 3 3 3 4 0 4 0 4	6 2 5 2 7 2 7 3 2 2 8	4 25 20 21 26 22 42 44 25 30

Table 6.—Daily mean temperatures (°F.), Wauseon, Ohio, 1883-1912.—Continued.  $[\mathbf{m} = \frac{1}{4} \cdot (7^2 + 2^p + 9^p + 9^p).]$ 

Day.	Jan.	Feb.	Mar.	Apr.	Мау.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Day.	Jan.	Feb.	Mar.	Apr.	Мау.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
						18	99						ŕ						19	01			,		
1 2 3 4 5	12 25 38 44 21	6 20 24 18 14	29 36 40 32 26	23 24 33 33 36	72 74 57 59 61	68 64 72 79 81	72 76 80 79 72	75 76 74 76 70	75 77 74 67 77	42 49 55 56 53	44 34 34 38 35	41 41 33 22 21	1 2 3 4 5	6 9 6 27 18	11 19 29 22 15	33 30 38 30 6	40 34 39 43 44	66 69 51 57 65	57 55 59 69 76	84 80 82 79 77	67 75 72 66 66	60 66 69 73 75	66 50 39 40 45	45 43 45 24 26	51 34 21 17 20
6 7 8 9 10		12 9 - 4 -11 - 8	14 20 18 35 37	38 36 35 40 44	57 58 56 65 64	78 78 72 69 62	71 72 63 66 68	68 66 67 72 75	72 75 66 59 61	49 51 52 52 66	36 40 37 48 46	26 33 33 38 50	6 7 8 9 10	31 32 42 31 36	12 9 18 16 12	14 30 39 32 40	39 44 43 44 45	61 62 57 60 59	64 52 55 61 70	76 62 66 74 83	69 75 73 81 70	73 75 62 64 65	50 52 64 62 58	38 40 41 37 39	21 33 41 32 30
11	19 32 40 37 38	- <sup>4</sup> 7 1 15 30	56 31 28 30 38	60 59 68 53 46	62 67 53 54 52	70 76 78 80 64	78 78 67 71 70	80 74 69 66 66	62 63 55 50 58	62 65 71 66 66	39 33 42 44 47	56 34 25 23 19	11 12 13 14 15	31 25 29 33 40	18 13 13 5 12	30 35 36 32 27	45 46 46 48 50	56 46 52 53 56	75 78 74 75 66	76 69 73 77 80	67 71 74 76 75	62 68 64 67 66	68 58 46 42 51	53 36 38 31 32	22 34 42 16 2
16	37 30 20 22 31	32 40 35 38 42	32 36 38 27 25	44 58 61 55 61	63 65 51 53 52	60 64 70 80 74	75 69 69 70 75	70 74 77 76 80	74 74 62 53 52	70 50 51 48 42	46 54 54 43 41	15 30 44 82 31	16 17 18 19 20	32 21 21 7 41	22 28 28 14 15	31 40 54 37 33	55 53 35 37 38	60 69 62 55 54	68 70 73 74 71	83 77 79 74 78	71 72 74 76 74	61 53 47 50 52	46 38 47 53 47	32 34 33 34 34	2 9 4 2 0
21	35 31 39 26 31	36 34 26 24 32	34 38 25 31 35	63 61 54 59 62	54 51 55 62 66	67 79 78 69 70	77 73 74 80 70	73 74 73 76 75	58 56 54 66 52	45 60 68 64 62	47 47 40 37 36	35 32 32 24 12	21	38 28 35 28 25	14 6 6 18 24	26 33 51 53 56	37 45 48 54 55	58 59 70 56 48	73 76 72 75 76	86 81 75 79 78	76 73 73 71 72	54 64 69 64 62	53 60 61 44 40	33 39 36 33 32	27 33 32 33
26	21 7 11 0 2 - 3	42 25 31	31 33 25 26 25 30	69 72 72 77 77 78	68 67 70 63 68 72	69 74 65 63 65	79 74 72 70 66 68	68 72 73 73 73 77	45 50 53 42 37	64 55 51 43 46 49	36 40 36 40 46	14 11 10 9 2 9	26	25 28 21 18 20 15	12 16 13	42 32 33 33 32 36	59 57 62 66 68	50 54 48 48 52 60	79 83 80 75 80	76 83 84 78 78 72	73 73 75 77 69 61	68 66 65 67 61	55 46 48 54 61 59	28 24 28 38 36	33 32 31 30 29 27
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1 2 3 4 5	13 21 17 30 35	1 12 28 29 24	23 26 22 25 17	45 38 39 34 45	53 62 39 41 48	69 62 57 62 67	66 74 76 82 82	69 70 71 76 82	78 76 68 70 77	62 68 70 72 75	49 47 46 52 41	34 33 41 36 35	1 2 3 4 5	24 31 13 15 26	27 15 3 1 4	35 29 29 30 30	32 33 36 37 46	52 64 62 68 57	72 76 66 66 66	61 70 79 81 80	73 75 74 68 70	71 61 66 57 57	51 53 54 54 53	56 63 47 55 55	36 40 36 29 24
6 7 8 9	34 40 27 39 30	34 45 46 19 29	30 21 24 36 34	57 59 42 32 33	59 62 63 49 56	72 71 64 61 73	80 75 65 62 70	80 81 79 81 81	78 70 72 72 79	74 57 54 47 51	37 39 33 33 35	36 35 32 22 22	6 7 8 9 10	30 36 33 35 30	20 8 11 14 19	37 39 39 37 49	46 28 40 45 49	63 52 65 46 41	69 71 58 63 66	81 80 79 77 64	61 65 65 69 72	62 62 71 53 59	56 52 60 48 53	48 38 39 52 46	33 23 16 16 34
11 12 13 14	28 29 32 34 35	36 39 23 22 15	19 25 34 22 18	33 31 34 43 53	64 70 74 77 76	68 60 71 70 62	70 64 68 77 79	80 73 75 74 70	80 65 63 66 73	52 54 57 55 59	28 34 33 24 22	18 29 22 14 17	11 12 13 14 15	24 19 19 28 30	18 21 12 16 15	54 55 39 38 47	50 40 38 36 42	47 60 54 50 52	70 75 73 74 76	67 67 75 75 70	61 62 62 64 64	56 48 43 48 52	55 60 51 39 47	55 63 61 44	28 21 16 17 35
16 17 18 19 20	38	10 11 16 16 31	7 12 37 35 24	54 57 56 54 56	68 68 55 51 60	64 68 65 64 70	76 73 71 73 72	75 77 79 78 76	53 52 56 63 68	46 43 53 48 53	26 42 54 58 61	17 33 35 36 27	16	20 30 31 20 28	19 23 18 12 18	36 14 18 27 37	42 46 53 52 52	56 63 70 72 70	64 63 67 66 60	72 81 68 74 70	59 61 71 72 71	53 61 60 57 64	46 46 59 54 47	44 45 47 40 48	26 31 37 34 38
21	39 34 45 22	34 30 34 6 . 9	26 42 39 30 31	55 55 55 55 52	60 63 68 69 66	70 67 68 73 77	66 72 79 72 70	74 72 73 77 78	59 60 59 67 79	63 68 60 60 60	40 50 37 36 35	35 45 39 30 20	21	28 26 29 26 28	27 30 37 36 35	40 46 47 40 39	69 73 38 48 54	68 76 67 69 65	53 54 56 60 61	62 70 67 70 75	67 57 58 62 62	64 66 67 57 65	45 59 60 66 54	52 46 44 42 34	39 33 27 20 12
26	14 25 6 10 11 3	8 16 21	32 38 33 32 33 38	55 60 61 66 53	69 66 64 63 71 69	77 74 73 65 60	66 67 71 74 72 75	76 72 72 73 70 73	76 60 62 60 59	60 47 55 64 63 65	33 35 34 30 35	22 29 24 16 30 26	26	33 7 6 12 18 22	40 44 42	50 58 55 48 40 36	46 49 56 56 52	54 47 49 61 66 68	58 60 58 60 59	78 71 72 72 73 73	66 67 66 60 73 74	64 61 63 64 60	62 47 40 39 47 45	34 27 30 34 32	12 21 23 25 13 18

Table 6.—Daily mean temperatures (°F.), Wauseon, Ohio, 1883-1912.—Continued.  $[m-\frac{1}{4}(7^{a}+2^{p}+9^{p}+9^{p}).]$ 

Day.	Jan.	Feb.	Mar.	Apr.	Мау.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
		<u>'</u>	·		<u></u>	19	08												19	05		·····			
1 2 8 4 5	17 31 34 26 25	39 38 32 27 24	24 33 33 38 38	49 65 31 27 36	40 52 40 49 56	57 62 62 68 64	77 77 80 80 71	64 69 72 68 73	62 68 68 69 59	68 60 71 64 57	51 48 54 56 38	18 10 27 28 22	1 2 3 4 5	45 27 10 18 25	10 - 1 2 7 14	27 29 34 26 31	41 41 54 42 37	44 60 68 68 63	64 61 60 69 76	73 74 74 73 75	64 70 72 71	65 66 58 58 57	69 56 62 64 62	26 31 40 37 45	26 32 17 24 27
6 7 8 10	20 29 12 11 10	26 26 25 28 39	38 54 38 37 40	53 52 50 52 46	61 51 55 64 65	66 64 71 63 63	72 74 78 83 79	69 58 67 66 70	58 64 72 76 60	65 58 51 47 47	27 29 41 52 42	26 (29 28 26 24	6 7 8 9 10	21 23 10 16 9	7 4 24 26 4	26 33 29 35 27	34 31 39 54 52	60 51 54 46 48	68 56 58 64 66	72 69 67 67 66	72 70 70 75 79	59 60 64 64 62	52 55 60 63 55	41 36 34 29 32	32 36 34 34 32
11 12 13 14 15	-12 -2 9 22 31	36 35 31 26 22	42 42 43 48 42	49 49 46 44 43	66 68 66 64 58	51 52 57 59 62	76 70 64 62 60	62 59 63 61 66	66 75 74 76 74	50 49 48 55 55	44 42 34 36 42	19 28 5 7 9	11 12 13 14 15	26 27 18 9 10	13 20 - 8 - 6 - 1	25 27 27 18 28	39 44 48 35 32	57 58 64 69 63	69 64 66 70 75	70 73 72 74 70	78 77 74 68 66	66 68 59 57 66	42 39 57 58 57	42 45 33 25 40	34 35 29 22 25
16 17 18 19	34 27 12 15 28	- 3 2 8 18	45 57 62 65 53	44 46 50 48 48	65 71 72 74 70	64 60 64 68 61	65 67 63 68 67	64 66 69 66 65	63 49 46 53 56	54 44 44 53 52	52 27 18 22 19	13 14 18 33 31	16 17 18 19	18 25 34 32 30	14 18 15 24 33	52 58 35 31	33 38 33 50 52	56 52 50 53 53	72 79 78 78 74	76 78 78 75 73	64 65 72 68 69	70 67 73 67 58	47 63 61 60 40	36 42 33 43 41	24 31 34 33 36
21 22 23 24 25	29 29 17 19 23	18 22 32 24 25	34 40 39 33 35	44 37 44 43 46	71 66 67 67 68	63 59 61 59 64	68 64 . 70 . 75 75	72 76 75 79 79	60 63 60 46 56	49 52 85 38 46	32 36 36 28 23	34 22 34 34 16	21 22 23 24 25	29 13 18 16 9	33 32 30 32 31	32 41 56 45 55	41 42 47 52 53	57 52 55 60 66	70 67 61 67 76	63 69 67 60 58	75 73 75 68 63	64 66 55 62 52	36 41 46 42 34	42 50 55 62 47	36 32 24 21 26
26	39 39 41 45 21 33	34 43 32	50 46 35 34 38 51	47 54 62 67 47	74 70 67 59 52 56	65 64 65 77 78	70 70 77 76 65 58	69 63 66 66 62 62	70 49 50 55 64	34 39 46 45 46 50	14 20 20 25 25 26	6 17 18 15 11 15	26	12 23 3 12 11 22	24 30 32	47 59 66 58 50 52	52 56 65 55 45	55 60 65 67 58 58	61 60 61 66 72	63 70 68 71 67 69	65 67 70 73 74 66	53 63 67 69 66	42 40 32 31 37 38	36 35 59 29 18	38 37 38 32 29 27
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1	- 4 10	5 12 6 4 32	31 46 19 26 37	48 34 30 35 43	52 55 58 60 64	56 60 72 75 73	58 59 67 73 70	71 63 67 71 70	72 71 64 63 63	60 49 44 53 50	46 43 47 48 43	30 21 20 19 25	1 2 3 4 5	24 32 37 29 29	18 10 24 23 4	35 36 38 27 27	87 40 50 45 37	55 58 54 60 52	64 60 68 72 68	72 72 63 67 62	71 71 73 77 77	65 69 64 61 62	48 56 64 63 60	30 37 36 40 42	29 30 25 30 34
6. 7. 8. 9.	21 25 32 22 19	44 27 9 9	39 35 32 34 39	40 47 46 40 35	67 67 67 50 46	67 60 58 59 59	68 67 72 70 71	65 64 58 70 68	64 68 58 63 69	40 44 60 70 68	34 41 39 36 31	27 31 29 19 18	6 7 8 9 10		6 3 10 15 9	28 33 34 34 29	41 52 42 47 43	45 37 44 37 44	72	66 69 70 72 72	77 71 72 72 73	74	44 49 58 40 33	42 45 46 43 37	32 20 28 31 33
11 12 13 14		11 10 23 24 1	33 23 27 25 28	39 32 30 35 40	50 65 59 47 40	61 66 70 68 68	74 63 67 73 73	64 65 74 65 74	67 52 62 55 52	55 48 41 46 47	32 35 33 34 38	20 21 9 7 12	11 12 13 14 15		20 37 41 13 11	i	44 55 64 52 40	60 70 64 55 68	56 62 . 65 63	68 70 73 76 72	73 64 64 67 71	65 57 60	31 41 56 52 56	32 30 27 31 31	40 44 52 27
16 17 18 19 20	22 12 7 28 32	7	32 36	30 39 43 28 32	49 54 48 51 58	59 63 69 67 70	1	72 70 65 65 68	69 64 65	1	42 51 47	ı	20	Į w	49	24 20	40 49 56 62 56		68	77	73 73 74 76 78	72	59 62 58 53 50	34 48 43 35 37	24 16 21 29
22 23 24 25	33 31 18 0	33 23 34 17 10	36 42 39 52 47	37 49 63 62 43	64 70 67 66 75	67 60 70 75 76	70 64 62 62 67	75 64 62 68 67	40 48 62 66 66	45 39 39 50 43	I	26 36 45 22 23	22232425	25 26	57 38 48 44 33	1	39 38 47 57	58 73 70 75 74		1	76 78 75 71 76	1	51 54 50 52 44	45 33 35 32 40	1
26 27 28 29 30	5 - 4 2 - 4 - 25 - 22	31 39 34	26 28 30 43 45 53	44 47 48 53 51	55	67 62 65 70 60		58 61 63 63 63 62	65 63 68 72 57	39 32 39 47 37 40	26 24 31 36 23	34 32 13 20 35 41	26	28 34 34 36 36 28		34	56 57 52 61 58	65 48 49 58 61 70	69 75 79 77 71	72 72 72 71 70 71	72 61 61 69 62 64	62 59 66 69 51	54 42 38 33 34 29	46 37 32 29 40	24 33 33 33 43 43 39

Table 6.—Daily mean temperatures (°F.), Wauseon, Ohio, 1883-1912.—Continued.  $[m=\frac{1}{2}(7^a+2^p+9^p+9^p).]$ 

Day.	Jan.	Feb.	Mar.	Apr.	Мау.	June.	July.	Aug.	Sept.	Oct.	Nov.	De <b>c.</b>	Day.	Jan.	Feb.	Mar.	Apr.	Мау.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
			•			19	07									<u> </u>			19	09	·				
1 2 3 4 5	32 37 42 30 37	31 21 11 10 10	39 32 21 30 28	27 36 52 51 30	41 45 47 39 47	52 48 58 56 54	70 57 63 67 70	64 58 55 62 63	73 65 63 62 60	52 62 66 56 48	48 48 40 40 42	23 23 25 19 25	1 2 3 4 5	18 28 42 45 36	15 28 27 42 51	41 34 32 26 32	38 41 37 42 62	35 38 39 47 67	67 68 68 66 69	71 71 60 62 64	73 71 74 71 73	52 59 59 64 54	47 50 51 50 51	53 48 45 46 44	38 39 39 47 38
6 7 8 9 10	52 57 40 18 27	8 18 22 30 28	24 30 30 28 28	36 43 38 31 33	48 48 49 57 40	55 58 56 58 60	74 71 76 74 72	71 72 67 67 73	62 61 64 64 61	57 57 43 49 50	37 37 38 39 32	32 41 47 48 26	6 7 8 9 10	10 10 23 32 36	31 31 30 34 17	37 34 33 48 31	59 42 34 29 26	64 52 58 52 44	66 61 57 62 61	66 66 73 74	70 72 75 76 69	56 61 65 65 66	51 56 59 58 56	46 52 45 44 56	24 20 4 7 15
11 12 13 14	31 32 34 35 23	12 17 38 29 34	35 44 34 30 37	34 34 31 30 38	40 56 71 71 52	63 61 56 67 65	67 65 70 71 76	75 71 69 69 75	60 62 64 71 72	41 42 40 42 46	28 29 32 23 27	24 24 26 34 30	11 12 13 14 15	18 1 17 31 23	24 38 28 23 20	30 31 37 31 32	58 34 37 44	49 58 62 64 67	63 66 67 60 57	72 71 72 73 69	66 68 74 70 75	63 67 73 75 64	32 38 42 38	62 50 59 61 42	24 33 36 30 24
16 17 18 19 20	25 27 33 54 16	32 31 42 33 24	48 42 34 46 35	36 32 37 37 38	47 63 64 58 43	67 75 74 70 72	77 77 73 75 73	75 74 65 71 67	74 68 68 74 71	55 54 40 43 37	26 35 37 37 45	26 26 26 21 30	16	17 21 15 30 32	14 21 35 36 31	27 21 32 39 31	60 58 63 44 42	57 54 53 56 58	66 62 56 62 70	68 66 64 61 70	71 68 66 71 66	58 64 56 60 71	42 43 39 39 47	46 33 32 43 53	24 14 10 10 15
21 22 23 24 25	15 6 8 15 14	12 7 18 29 23	50 65 64 44 51	43 50 44 50 40	46 50 52 54 55	73 76 73 71 72	75 73 73 76 77	56 64 69 66 62	57 48 57 56 44	37 42 46 43 42	44 33 33 32 40	29 28 33 30 34	21 22 23 24 25	43 51 59 50 41	32 34 41 29 22	30 32 38 38 38 30	49 45 37 43 47	58 57 57 58 58	74 75 71 72 73	72 72 64 66 67	62 62 68 74 76	70 70 56 51 49	58 46 36 33 44	44 37 24 31 30	16 24 22 20 28
26	12 14 21 12 12 21	24 20 24	66 66 54 56 44 30	38 46 59 57 37	63 38 50 59 54 54	62 62 68 67 74	65 64 69 70 68 68	65 65 69 69 71 68	49 54 57 50 48	39 41 34 39 37 44	34 42 35 29 30	38 53 29 31 34 30	26	34 33 28 30 17 4	38 31 25	39 36 34 33 36 34	46 44 38 41 48	60 60 60 64 66 66	76 72 78 70 72	71 69 79 75 74 69	75 71 77 64 62 61	47 45 48 51 48	48 39 30 37 53 59	39 49 48 32 28	18 16 14 4 7 21
					· .	19	08						,						19	10		<del></del>	<u>'</u>		
1 2 3 4 5	29 26 30 32 22	17 8 16 11 29	33 29 25 28 32	41 28 31 38 46	40 37 44 45 47	58 64 63 64 69	71 69 69 70 74	70 74 76 76 76 71	63 58 56 61 67	43 41 46 52 58	33 36 50 25 32	26 18 26 31 21	1 2 3 4 5	35 29 16 12 24	26 38 27 28 19	39 37 37 41 48	47 50 56 62 60	59 52 44 44 46	44 47 49 55 54	78 78 75 65 72	72 73 76 65 62	60 66 73 70 74	60 55 71 66 66	31 34	28 27 25 23 21
6 7 8 9 10	30 33 25 20 28	20 19 7 13 28	42 35 33 31 39	52 45 44 44 51	49 48 46 51 58	72 76 74 63 64	80 64 63 66 71	67 65 64 66 67	66 56 60 65 70	58 56 45 45 49	43 42 46 42 37	32 20 17 16 30	6 7 8 9 10	14 11 21 16 15	9 25 34 25 20	47 29 33 32 31	40 40 53 55 55	48 50 51 54 56	55 56 62 60 59	73 72 77 77 77 70	65 66 69 68 68	70 68 72 54 54	46 43 52 48 49	29 35 37 55 34	22 22 19 11 24
11 12 13 14 15	33 32 20 23 32	34 43 38 33 28	44 48 41 48 40	40 48 48 62 44	63 67 57 52 65	60 64 73 60 53	81 82 76 73 65	74 72 72 75 70	73 73 66 64 64	42 39 50 65 65	30 26 23 23 28	33 30 28 37 40	11 12 13 14 15	24 30 28 24 25	22 20 18 29 42	34 42 37 26 32	56 39 48 59 61	48 46 41 41 49	54 60 67 68 71	73 71, 68 73 76	65 68 70 75 77	60 68 59 54 56	58 49 53 64 62	30 36 36 33 34	23 17 19 30 20
16 17 18 19 20	20 25 26 33 36	20 15 20 25 17	33 37 33 29 29	34 46 48 51 50	70 70 67 61 66	58 65 78 75 74	74 74 71 66 68	78 72 65 61 57	64 63 67 75 70	60 64 66 56 55	27 37 38 52 37	35 34 33 29 30	16	27 36 30 31 37	20 14 10 14 30	38 32 43 53 46	58 47 44 40 39	57 56 55 65 64	71 76 78 75 76	74 66 65 67 70	74 77 69 63 64	58 63 65 68 66	62 64 65 64 55	32 28 30 28 31	18 22 31 26 18
21 22 23 24 25	33 16 20 30	21 21 24 21 34	39 47 44 38 42	46 60 64 67 62	65 70 65 66 73	76 81 78 68 65	70 72 70 69 71	64 62 62 60 61	70 71 73 73 70	56 50 55 57 46	36 53 55 52 57	27 23 31 29 31	21 22 23 24 25	25 22 28 26 26	26 23 7 9 16	45 56 47 64 - 55	46 53 33 38 40	70 70 62 59 54	74 73 80 70 66	76 73 77 77 77 73	71 72 72 80 69	61 58 59 65 59	52 43 45 54 46	33 34 39 34 38	17 28 29 18 17
28293031	32 18 22 8 14 24	23 15 23 23	62 44 46 33 41 46	58 44 41 38 39	70 72 71 69 62 51	65 70 76 63 67	74 74 72 73 77 72	63 64 65 72 74 76	69 74 46 44 55	48 46 48 41 32 36	46 34 36 38 55	31 30 30 35 36 19	26. 27. 28. 29. 30.	36 32 28 27 24 12	38 35 33	51 65 61 66 67 43	39 46 45 69 57	49 54 64 62 47 41	71 67 71 71 76	74 75 72 74 69 63	56 59 63 66 72 67	63 55 54 56 64	53 41 32 30 43	31 33 33 30 28	26 29 33 32 19 25

Table 6.—Daily mean temperatures (°F.), Wauseon, Ohio, 1883-1912—Concluded.

 $[m=\frac{1}{4}(7^{4}+2^{p}+9^{p}+9^{p}).]$ 

Day.	Jan.	Feb.	Mar.	Apr.	Мау.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Day.	Jan.	Feb.	Mar.	Apr.	Мау.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
			<del></del>	<u> </u>		19	11					·							19	12					
1 2 3 4 5	38 20 13 13 12	32 28 29 30 20	32 34 33 26 31	24 30 32 44 44	49 39 42 46 47	64 67 67 70 72	78 82 85 84 84	71 73 70 70 76	70 76 74 67 66	53 50 60 57 48	35 27 32 38 42	31 31 22 20 28	1 2 3 4 5	22 18 14 6 -2	23 6 0 -2 5	11 14 14 16 16	34 33 35 51 58	53 62 57 60 64	72 59 70 59 65	66 69 73 77 78	62 58 57 57 62	80 78 72 72 77	48 52 54 55 58	34 30 33 46 51	51 38 35 40 54
6	23 32 29 23 38	21 19 25 24 17	30 26 32 46 40	45 36 33 39 43	55 59 67 67 72	69 62 66 76 83	80 74 78 82 77	78 78 74 75 77	64 67 69 68 69	65 45 44 52 56	50 43 37 44 56	32 38 45 49 55	6 7 8 9 10	-2 9 1 2	16 18 4 0 -4	21 29 30 18 22	63 35 44 54 46	67 65 59 53 63	61 51 56 61 64	75 76 76 76 75	66 65 70 68 63	78 68 71 74 74	66 48 54 62 58	54 40 45 42 52	30 30 22 24 35
11	41 33 34 34 24	29 34 37 42 35	50 37 30 41 17	50 50 56 45 39	67 63 53 57 72	73 65 59 60 65	75 72 66 67 74	70 68 72 75 74	72 58 55 61 70	48 52 51 53 52	63 18 19 27 29	42 35 32 31 32	11 12 13 14 15	6 2 2 15 4	14 5 9 27 30	27 29 25 33 24	55 49 43 57 60	63 48 46 49 51	70 68 59 67 69	72 75 75 76 76 73	66 71 74 70 65	66 59 66 70 70	68 48 47 46 43	59 59 42 32 29	19 10 30 33 38
16 17 18 19	24	44 45 30 22 17	18 35 31 39 44	42 41 54 49 49	73 76 76 79 78	64 61 68 73 76	66 61 69 70 67	75 73 68 59 63	66 66 71 60 59	64 54 49 54 51	26 36 30 30 31	33 30 30 26 32	16 17 18 19	9 29 29 10 16	28 29 35 34 28	26 42 37 42 22	51 37 38 40 47	50 51 63 52 71	68 64 57 60 64	66 73 60 62 66	62 70 76 73 74	59 61 62 56 62	43 54 61 44 46	38 32 37 45 51	36 40 31 26 30
21 22 23 24 25	27	19 27 31 36 41	53 38 27 29 47	46 39 42 47 51	76 70 67 64 70	70 78 79 73 72	68 64 66 58 58	68 68 63 56 60	60 62 66 63	48 42 41 42 46	31 32 34 28 32	39 39 30 33 34	2122232425	21 31 28 16 17	18 18 30 36 34	23 22 29 26 25	59 47 49 47 53	70 74 76 65 61	60 63 66 68 71	72 69 71 80 74	69 65 59 72 80	67 54 55 62 67	58 54 43 42 46	42 40 37 32 31	20 23 25 28 32
26. 27. 28. 29. 30. 31.	46 44 35	40 29 23	51 33 28 33 30 29	56 60 61 63 64	76 79 82 66 64 65	78 73 65 65 71	60 66 70 68 70 78	66 71 64 58 57 61	57 64 57 57 53	48 33 35 40 42 43	37 40 36 27 26	36 23 16 28 33 25	26	18 9 19 24 20 13	31 19 21 15	36 34 34 34 35 44	60 48 41 43 49	68 75 66 55 56 65	75 69 74 78 65	68 68 73 68 66 58	74 58 63 59 61 79	45 47 50 44 47	41 49 54 59 40 43	33 27 28 35 34	33 29 31 35 35 34

95627--15----5

Table 7.—Daily maximum temperatures (°F.), Wauseon, Ohio, 1883-1912.

Day.	Jan.	Feb.	Mar.	Apr.	Мау.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
						188	38								,				188	85					
1 2 3 4 5	27 28 28 18 23	10 17 34 33 16	60 51 33 31 30	35 42 48 58 56	67 73 83 72 56	69 81 79 77 85	81 89 92 92 89	83 81 72 74 76	80 83 72 78 72	62 62 62 55 57	40 50 52 63 66	54 44 34 50 51	1 2 3 4 5	21 16 25 35 41	31 21 44 39 28	41 36 43 36 38	59 62 39 44 63	57 58 54 62 67	80 80 80 84 74	78 79 84 88 90	88 72 68 79 75	67 70 74 65 70	78 78 64 47 48	38 42 40 52 54	40 42 39 49 34
6 7 8 9 10	28 28 29 23 17	17 25 27 29 17	38 23 32 49 39	48 42 56 70 70	68 81 68 77 73	83 79 80 78 66	90 86 74 74 81	78 79 78 82 84	75 68 62 64 69	62 59 73 85 77	61 47 65 65 56	52 55 52 46 48	6 7 8 9 10	47 39 48 43 34	13 28 34 20 10	38 32 31 39 37	60 61 57 34 47	59 52 51 47 45	77 87 74 72 75	88 83 88 86 78	71 75 80 91 84	72 73 75 67 56	48 54 52 59 68	63 69 42 40 44	23 15 34 53 24
11 12 13 14 15	23 20 36 14 24	33 38 43 35 42	28 39 .51 62 50	58 56 56 84 74	61 63 58 70 64	71 79 74 75 77	83 80 84 85 83	84 85 68 72 77	74 76 84 87 89	60 65 58 57 49	57 34 51 38 25	46 47 56 46 20	11 12 13 14 15	44 45 20 27 29	18 16 31 40	32 30 30 44 39	42 47 35 40 45	65 61 72 76 78	81 84 85 90 82	81 86 83 82 87	82 86 84 67 73	70 80 73 80 75	72 64 57 56 64	63 66 62 36 33	19 24 35 30 26
16 17 18 19 20	32 36 32 35 34	60 37 26 32 42	33 52 69 21 29	60 70 76 65 60	67 68 72 82 62	87 89 85 78 76	86 79 76 78 74	81 85 82 89 80	78 70 69 68 77	51 59 60 69 48	26 47 52 60 58	19 19 30 25 24	16 17 18 19 20	24 17 2 0 9	33 11 17 8 10	18 18 28 19 12	47 40 43 65 75	81 83 81 68 77	70 74 79 82 76	1	76 81 82 80 81	70 76 79 81 77	71 76 66 64 61	45 55 53 48 38	37 36 43 35 33
21 22 23 24 25	$\begin{bmatrix} -\frac{21}{2} \\ -\frac{2}{29} \\ 20 \end{bmatrix}$	33 29	34 33 33 42 41	61 47 48 39 56	52 40 68 76 80	78 84 85 82 71	86 91 87 71 81	80	64 73 72 66 62	44	61 63 48 56 60	20 18 30 34 27	21 22 23 24 25	22 33 28	23 31 31 34	21 23 28 35 35	78 79 82 68 52	80 67 74 82 77	79 66 74 79 83	97 88 92 94 92	85 81 80 80 73	84 79 60 74 83	56 56 58 64	36 36 34 39	47 54 52 39 28
26	28 40 32 38 43 19	31 44			69 67 65 71 65 63	62 70 70 78 79	81 80 78 73 77 80	75 74 78 78	69 55	64	36 46 45 42	38 38 27 46 39 38	26 27 28 29 30 31	- 6 - 16 - 36		52 47 45 41 46 56	63 68 62 64 58	80 73 70 77 72 77	86 84 84 72 74	80 86 91 92 90 94	67 72 78 74	88 82 80 82 80	68 68 52 50 39	31 35 42 48 46	31 38 37 40 51 46
			1			1.	884					!	·  		1		,	<u> </u>	1	886	<u> </u>	!		1	
1 2 3 4 5	29 23 10	) 28	20 24 23 24 30	48 36 51 61 53	64 68 64	87	92 87 83 83 83	88 84 1 74	87 89 92	88	50 44 44	46	1 2 3 4 5	. 38	11 12 11	42	37 39 39 40 39	60 73 70 73 72	83 84 71 74 77	82 84 89 92 96	78 78 74	76 83 84	47 58 66 70 68	71 59	14
6 7 8 9	17	31 7 35 2 34	38 28 25 29	54	61 62 69	86	76 82 82 77 86	72 7 71 7 73	91 92 92 95 95	76 67 62	56	35 35	9	. 16	3   50 3   52	34 34 33	60	75 66 74 62 70	80	98 99 85 87 90	83 88 91	88 89 90 87 77	70 77 79 81 80	41 40 37	46 52
11 12 13 14 15	44	1 37 1 45 7 31	38	i   56	72 63 66	82 71 69	83 77 81	7   88 L   90	77 72 78	3   60	)   58	35 31 28 34 32	12 13 14	20	) 42	39 37	65 69 81	89	81 90 76 92 5 95	0   87 3   89	95 7 90 9 87 8 74 8 82	76 76	81 84 72 62	41	44 44 30 30
16 17 18 19 20	. 2: 34 34 . 36	4 46 1 45 0 58	53	55 55 6	74	89 85	80 79 81 81 83	9 94 7 95 3 95	80 2 70 2 70 3 74	68 64 77 1 78	8   50 4   36 4   39	15 8 8	17 18 19	25	2   40 7   48 2   40	9 47 3 64 9 75	79 78 78 75	67 74 79 81	7 78 1 73 0 76 1 83	8   86 8   82 3   82 3   78	2 81 2 80 3 87	70 71 70	51 70 62 77 78	50 2 41 7 36	32 32 24
2122232425	3	5   39 1   28 2   28 2   34	63 3 59 1 53	3 48 7 46 3 56 9 67 3 70	82 7 72	1	1	7 88 0 86 8 85 1 7 8 8	3 77 0 81 2 74 7 76 0 78	7 70 1 60 1 41 3 4 5 5	1	26 14 20 12	22 23 24 25	2 2 3	7 31 3 3 4 4 5 4		83 84 78 78		1		5   84	72 84 86	1	50 1 50 3 21 3 21	38 37 38 38 21
26	3 3 5	5   30 8   15 6   15 0		70 1 72 3 6 3 79	69 2 58 1 69	79 3 83 5 86 4 91	8 8	6   8 3   7 6   8	5 76 3 78 1 78 0 83 8 89	5 5 5 4 1 4 2 5 3	6 39 7 34 4 30 6 35	23 33 42 0 49 5 55 - 56	28 29 30	$\begin{bmatrix} 3\\2\\2 \end{bmatrix}$	9 0	3 55 3 39 2 40 47 40	65	75 5 75 6 75 78 81 81 81	4   83	0 8: 9 9: 0 9: 7 9: 2 8: 9	4 7	3 74 3 76 3 65 7 63 2 71	4 43 44 45 44 45 46 46 46 46 46 46 46 46 46 46 46 46 46	3 3 2 3 3 3 4 4 4 4 2 7	1 28 2 18 2 13 5 14 2 19 2 23

Table 7.—Daily maximum temperatures (°F.), Wauseon, Ohio, 1883-1912.—Continued.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Day.	Jan.	Feb.	Mar.	Apr.	Мау.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
		<u>!</u>				18	887	1							<u>'                                    </u>				1:	889					
12 34 5	23 13 5 19 24	15 27 31 27 23	51 62 35 37 32	52 59 76 64 42	73 82 72 71 60	71 63 78 85 86	92 90 92 81 86	95 96 100 97 100	90 78 76 60 71	61 71 69 56 48	59 67 60 60 52	32 34 50 58 36	1 2 3 4 5	39 43 48 45 36	26 35 32 40 40	33 35 49 35 46	40 56 52 45 41	62 45 64 74 78	53 56 73 62 69	87 92 84 79 84	82 81 80 79 78	88 84 86 84 74	66 63 76 63 66	49 62 53 51 38	43 51 48 30 43
6	15 18 12 18 11	38 48 56 42 52	54 57 56 58 50	46 50 69 80 80	74 74 78 77 76	79 85 87 78 77	90 92 94 86 85	87 84 91 98 99	95 80 81 68 75	71 83 78 66 66	67 68 54 49 44	47 41 39 39 42	6 7 8 9 10	37 33 39 44 28	18 20 35 29 35	46 40 36 30 37	48 58 64 60 68	84 87 88 87 91	77 72 74 75 64	85 88 91 93 92	81 83 81 80 81	79 80 82 86 88	49 53 62 68 70	48 50 44 49 48	47 47 60 56 54
11	21	51 20 28 37 41	42 52 50 31 36	84 84 68 78 74	80 80 85 72 84	79 82 85 87 90	90 92 98 90 98	91 88 85 70 87	86 94 92 79 74	51 52 58 56 60	49 51 53 54 46	40 31 39 44 35	11 12 13 14 15	31 34 38 30 34	34 22 22 32 31	47 56 57 52 69	58 67 52 50 56	83 78 69 78 74	73 78 81 80 83	86 89 90 71 80	77 80 72 78 75	84 84 84 86 90	80 66 53 53 66	48 59 61 47 42	54 55 54 41 46
16 17 18 19 20	32 36 10 31 46	39 37 49 32 29	41 36 36 49 52	49 43 39 56 61	83 63 75 84 89	89 90 91 88 91	96 101 91 89 92	87 70 86 82 86	79 69 84 84 87	71 73 59 62 68	57 47 48 40 26	33 27 40 44 39	16 17 18 19 20	55 54 29 26 37	51 52 33 17 17	66 71 51 58 42	67 74 79 78 76	78 89 91 72 74	85 78 84 85 82	83 86 82 88 78	75 78 80 86 86	63 68 60 67 66	69 69 65 70 56	44 41 42 50 49	48 47 49 51 55
2122232425	40	32 41 34 34 32	42 34 42 55 44	66 60 61 52 53	92 89 87 79 68	77 74 61 73 81	86 88 79 85 91	74 82 74 74 74	88 71 57 62 69	48 51 56 47 40	27 39 42 42 42	34 16 25 26 27	21 22 23 24 25	26 41 48 46 49	44 36 9 16 25	48 58 66 67 50	64 58 73 72 51	56 55 60 72 61	72 72 70 73 80	83 86 79 77 79	80 82 85 87 90	63 69 79 84 68	51 48 50 54 52	53 46 43 58 44	43 53 49 64 62
26. 27. 28. 29. 30.	32 34 44 43 36 8	45 21 31	39 32 28 25 39 45	57 61 62 60 68	64 74 81 81 65 72	78 80 86 91 92	92 97 96 94 97 95	62 73 78 79 82 86	68 55 67 74 67	45 55 60 52 44 56	58 61 24 30 31	20 35 34 22 19 39	26	48 32 29 35 31 36	36 45 36	60 54 48 39 41 38	62 68 52 49 54	67 57 62 46 42 50	81 84 83 84 83	85 89 85 74 80 83	90 90 87 90 94 88	58 60 77 67 64	48 43 51 44 49 51	37 40 31 29 28	58 46 47 64 36 38
		1		[	I	18	888	1			<u> </u>						···········		1	890					
1. 2. 3. 4. 5.	41 19 25 38 34	32 38 32 35 34	41 58 31 20 27	65 51 50 62 74	44 58 79 68 68	70 67 70 76 84	80 82 89 89 91	86 88 98 92 90	76 84 85 86 73		76 68 60 64 70	40 33 38 44 38	1 2 3 4 5	54 56 36 44 58	37 41 52 64 62	24 28 33 33 22	46 60 58 56 55	60 66 77 66 54	84 85 88 90 85	88 84 83 79 79	92 98 100 97 87	80 84 88 86 86 82	64 74 75 69 67	54 48 41 44 64	33 26 26 24 30
6 7 8 9 10	44 44 38 27 21	29 36 20 10 20	33 38 44 45 45	57 58 52 61 58	80 81 76 73 77	82 68 82 86 79	85 86 84 73 83	90 86 86 78 83	71 76 88 86 86	56 65 60 57 64	67 46 54 56 48	35 48 40 38 47	6 7 8 9 10	58 33 34 42 45	34 30 28 32 43	27 25 34 45 37	63 60 76 62 43	49 57 61 58 59	78 73 78 76 81	84 93 96 80 78	90 86 91 90 80	84 88 70 65 63	69 64 71 73 69	65 69 46 64 41	41 30 31 30 44
11 12 13 14	13 32 39 32 25	46	26 27 38 50	63 49 55 57 46	84 66 48 46 58		88 86 76 77 80	79 83	92 78 72 78 82	55 46 51 58 50	48 56 59 62 56	40 31 28 33 43	11	66 64 64 32 37	50 39 46 42 45	56 53 50 38 28	62 76 75 63 48	59 69 62 65 65	82 80 84 82 86	86 93 86 91 91	82 87 87 85 85 89	66 71 63 69 68	58 62 82 58 66	48 54 56 60 51	40 32 35 44 46
16. 17. 18. 19. 20.	. 18	47	45 33 45 71 56	55 65 57 48 46	61 64 56 62 67	95	83 87 86 84 86	86	68 70 66 75 78	62 56 48 54 44	45 38 36 42 37	47 47 25 29 32	I	I	53 60 53 33 38	34 42 49 43 54	57 03 61 50 62	62 60 74 57 58	89 90 84 86 78	88 94 83 80 79	92 74 79 73 80	68 71 77 70 61	57 64 65 59 58	50 53 57 51 56	34 34 42 34 44
21 22 23 24 25	25 21 31	47 52 46	39 16 33 22 31	51 48 55 54 64	74 79 77 71 63	1	87 83 89 88 91		77 75 74 77 81	45 44 44 62 69	1	30 31 50 50 49	21. 22. 23. 24. 25.	25 44	25 38 36 61 45	61 46 44 46 59	71 78 71 60 54	57 79 78 82 74			72 72 71 74 72		58 53 51 61 54	63 46 51 57 52	50 48 40 30 26
26 27 28 29 30 31	24 31	20 13 28 48	50 39 39 48 62 56	79 85 86 85 52	78 78 75 73 72 67	84		91 77 81 86 90 83	70 60 52 57 55	58 67 51 62 57 76	39 37 37 38 37		27 28 29		50 41 38	44 42 36 41 38 43	48 62 65 68 70	72 74 78 85 88 77	94 89 94 96 93	88 92 92 95 97 98	71 78 80 72 71 74	62 56 60 64 66	49 45 48 42 47 45	32 34 42 47 41	28 32 26 37 46 44

Table 7.—Daily maximum temperatures (°F.), Wauseon, Ohio, 1883-1912—Continued.

Day.	Jan.	Feb.	Mar.	Apr.	Мау.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Day.	Jan.	Feb.	Mar.	Apr.	Мау.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
						18	91				,								189	98					
1 2 3 4 5	53 47 25 27 30	42 46 47 14 39	23 29 28 29 37	51 55 42 36 40	70 67 64 53 52	87 82 80 70 65	75 83 75 78 79	84 78 78 86 89	78 84 70 68 63	72 88 83 75 62	43 45 43 46 43	43 42 59 56 50	1 2 3 4 5	34 31 17 15 22	37 23 34 20 39	39 46 38 24 32	65 58 73 65 71	68 54 57 52 55	75 76 84 84 80	79 87 81 77 83	86 88 89 92 95	86 76 82 91 96	71 82 64 68 72	64 68 50 53 59	29 20 28 22 31
6 7 8 9 10	32 30 30 32 33	50 37 38 42 30	24 33 41 36 46	40 48 51 40 69	59 68 75 81 84	56 67 76 85 85	81 67 71 78 82	93 95 96 98 100	76 73 73 76 79	63 50 64 67 68	51 63 59 60 59	35 32 41 45 49	6 7 8 9 10	25 27 22 26 9	43 30 14 37 39	45 52 50 58 54	56 82 73 61 53	65 59 65 71 80	72 78 81 84 87	70 92 90 83 81	83	89 97 78 83 85	70 70 77 82 84	65 66 68 65 57	25 30 38 40 35
11 12 13 14 15	34 33 26 36 36	41 49 47 40 56	54 46 34 24 37	50 60 74 72 52	65 68 74 75 82	83 77 83 93 92	86 88 91 84 74	93 87 86 79 83	83 84 81 75 86	58 57 67 49	50 43 37 41 48	51 49 52 53 58	11	5 20 14 9 -1	34 40 37 41 41	58 42 61 54 25	53 74 66 43 49	83 71 56 69 66	78 79 79 81 81 84	93 95 92 91	76 78 90	82 80 78 86 87	84 85 65 57 51	50 60 51 36 30	29 37 29 34 56
16 17 18 19 20	26 28 28 34 41	52 53 43 32 50	42 44 62 32 41	60 79 75 74 66	63 67 76 82 78	94 90 72 78 82	88 88 80 82 82	90 87 91 94 85	90 93 93 90 93	59 65 54 48 53	57 38 27 38 39	40 27 35 42 43	16 17 18 19 20	7 9 28 26 21	35 22 31 35 16	30 36 38 38 49	57 59 54 46 55	54 61 69 77 87	83 88 90 95 91	88 87 83 85 83	77 86 89 79 83	68 73 80 90 77	58 66 68 71 53	42 52 46 38 42	51 31 37 35 28
2122232425	39 38 38 31 39	50 33 49 55 57	36 46 51 44 44	81 78 67 61 66	80 66 64 74 74	85 83 86 87 92	90 93 88 87 78	85 77 67 62 76	95 93 94 95 96	58 49 53 56 69	54 52 49 37 34	56 57 40 40 53	2122232425	28 29 34 29 33	19 34 33 36 31	50 40 69 64 36	44 38 45 52 46	76 87 76 73 74	87 77 85 86 86	89 90 86 90 95	83 86 93 92 86	90 78 73 58 58	63 67 74 65 56	39 40 29 25 28	42 51 59 66 62
26	37 48 36 46 40 44	30 27 27 	35 37 47 58 48 50	74 74 65 71 79	64 66 67 59 77 85	90 77 86 88 79	77 82 83 84 82 83	79 73 71 75 74 76	88 93 91 69 69	66 50 49 68 70 66	48 32 31 31 28	52 33 45 45 44 41	26	31 22 49 45 27 34	39 48 43	36 48 40 48 60 67	.61 61 64 49 44	55 66 63 74 77 76	84 87 84 83 88	88 81 90 89 92 91	87 90 88 74 83 82	64 71 63 68 51	56 49 43 42 45 57	40 42 42 43 34	33 42 50 40 27 35
		1		<u> </u>	1	18	392	<u> </u>		<u>!</u>	<u>'</u>					<u>!</u>			18	394	<u>!</u>		1	<u> </u>	
1 2 3 4	55 51 26 27 33	45 40 36 37 34	33 37 47 40 39	74 72 63 70 70	72 75 66	80 80 68 78 75	73 71 71 76 78	84 88 81	71 78 86 88 76	69 65 81 67 55	56 50	34 33 41 40 35	1 2 3 4 5	41 51 50 52 57	36 27	50 52 58 67 70	48 48 60 60 41	74 68 80 74 66	85 77	90 86 85 84 82	95 88 71 81 86	90 98 96 86 80	70 80 75 53 53	61 68 49 49 40	32 39 47
6 7 8 9 10	28 22 20 12 17	38 54 36 30 35	41 48 39 54 28	57 64 53 33 39	56 61	83 77 75 78 78	78 79 87 89 88	93	72 65 72 85 82	63 73 48 64 68	33	52 59 52 39 32	6 7 8 9 10	36 26 35 36 40	43 42 58	60 43 47 53 67	56 58 51 43 43	75 68 68 79 85	86 91	82 78 82 86 89	88	92	62 70 59 50 58	45 34 36 34 38	58 45 41
11 12 13 14 15	. 30 . 22 . 27	34 28 32 40 25	29	47 52 52 37 52	56 60 58	85 90 89 83 88	90 89 87 88 90	84 84 87	60		39 58	30 32 43 42 37	11 12 13 14 15		25 29 27 30	47 56	47 59 67 65 68	69 79 80 85 66	95 94	95 96 91 89 92	89 95 88	87	61 55 51 51 57	36 37 57	37 47 55
16 17 18 19 20	. 34 26 20		26 29 32	50 50	75 71 62	89 81 84	76 82 82 86 86	94 93 76	74 79 71	80 65	56 59 45 34 36	40 35 35 34 25	18 19 20	53 42 56	37 39 38 15	78 67 50	78 76 79 71 62	84 87 72 40 48	78 80 90	96 99 99 100 90	84 95 82	1	72 68 69 81 78	39 33 47	39 37 45 57
21 22 23 24 25	. 41	41 55	39 46 41 51 60	47	1	1		84 87 90 89 78	80 80 87 87 84	68 68 57 55 44	41 34 30 31 33	21 20 23 22 19		31 32 22	1	1	51 47 53 66 68	70 76		80 83 85 92 92	87 91 92 86	79 70 64 63	1	ı	45 30 87 39
26	. 22 - 38 - 42 - 36	32 45 39	51 53 57	77 71 60 64	62 65 69 74 81 83	73 76 77 72	97 93 92 87 82 87	82 74 81 88 78 61	67 70 78 79 83	46 48 59 48 51 59	35 33 40 37 33	23 26 25	26	. 24 37 . 35 . 32		34 33 40 50	72 78 85 67 85	81 79 61 66 58 65	88 91 95	96 97 92 94 96 98	88 85 93 82	72 79 84 83 69	56 54 60 66 58 47	35 35 35 35	23 17 25 24 22

Table 7.—Daily maximum temperatures (° F.), Wauseon, Ohio, 1883-1912—Continued.

Day.	Jan.	Feb.	Mar.	Apr.	Мау.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
	1895											1897													
1 2 3 4 5	32 35 33 22 23	28 21 28 15 13	52 34 48 18 29	39 46 49 55 67	76 83 88 92 94	96 96 100 84 74	86 84 84 89 95	83 87 92 94 93	75 82 90 75 85	65 72 76 69 69	46 52 65 65 73	36 33 18 25 22	1 2 3 4 5	53 56 57 58 28	28 37 36 32 36	41 86 45 39 54	52 57 60 64 54	44 44 51 67 77	68 83 73 66 74	89 93 96 98 95	79 89 95 83 81	82  86 92	94 72 75 82 89	52 50 60 65 56	31 30 34 36 31
6	43 37 32 28 31	2 6 3 19 20	36 42 40 41 40	75 59 57 57 57 54	77 78 77 86 88	74 81 88 91 95	96 93 95 80 81	80 85 93 96 98	86 81 80 88 96	73 64 51 51 62	70 72 62 42 39	26 39 32 31 31	6 7 8 9 10	23 26 39 41 36	37 35 36 30 31	37 35 45 62 51	46 41 46 41 49	80 69 78 83 76	79 63 70 72 77	87 93 99 102 101	82 86 84 83 81	91 91 97 98 97	72 66 82 62 69	51 46 57 47 51	31 36 51 53 57
11	16 32	21 21 26 32 36	28 39 38 24 20	58 58 62 52 60	74 55 50 44 50	95 91 88 92 82	87 92 83 92 92	86 89 88 92 99	97 95 74 76 81	58 59 67 60 57	43 45 45 55 49	31 29 26 36 39	11	30 26 26 29 30	31 34 34 38 38 35	55 48 32 35 41	40 49 60 51 59	76 72 69 57 66	84 83 90 91 93	77 80 71 80 82	83 81 87 85 87	89 94 99 93 98	72 66 71 89 91	48 43 47 40 62	52 38 43 51 41
16. 17. 18. 19. 20.	36 28 39 31 43	36 34 32 35 35	30 39 51 43 38	50 57 60 72 75	61 65 72 63 52	90 93 94 81 72	99 92 92 98 97	96 97 91 84 83	92 93 96 96	64 60 69 57 42	46 42 48 38 31	38 47 51 57 58	16	35 54 33 27 33	41 46 40 42 44	40 41 65 49 58	48 51 65 57 48	70 73 79 79 72	80 84 77 80 75	84 81 86 89 88	70 71 78 76 77	97 70 75 70 66	86 58 62 81 67	61 38 38 54 64	42 25 20 23 29
21 22 23 24 25	50 24 18 18 25	36 29 31 43 47	44 44 60 63 54	76 64 65 82 85	60 70 77 82 78	88 90 91 92 97	93 88 80 84 89	84 89 93 84 89	97 96 83 73 77	51 60 49 57 60	30 39 34 37 36	52 47 46 50 58	21		41 41 35 35 31	61 60 43 37 38	62 76 77 81 67	63 71 67 60 64	71 81 85 87 85	85 88 84 89 93	84 84 72 75 78	71 81 76 81 88	63 55 62 67 68	59 44 32 36 45	29 23 21 18 34
26. 27. 28. 29. 30.	36 12 7 20 14 23	45 43 61	38 67 55 60 41 42	66 62 69 83 82	69 63 88 95 96 96	84 90 86 81 77	89 82 84 87 79 78	77 87 95 72 82 76	78 68 72 52 55	71 66 40 40 44 43	55 35 47 38 35	40 31 38 36 28 19	26	5 8 12 19 31 31	24 18 29	43 44 50 64 64 54	63 60 79 66 56	67 78 60 69 61 64	75 78 85 90 91	88 82 85 88 91 91	83 87 91 92 79 81	92 69 75 86 91	64 74 75 55 65 61	58 38 42 35 25	30 31 32 37 38 33
		[	<u> </u>	1	!	18	96	<u>!</u>	·	!	<u> </u>			1898											
123 34 5	27 35 24 3 17	46 37 33 34 41	29 34 34 34 37	57 35 38 38 38 57	81 76 78 82 77	69 69 77 87 92	92 91 91 90 81	80 82 86 89 93	73 80 74 71 73	56 01 64 65 69	64 69 70 63 60	21 26 32 36 48	1 2 3 4 5	19 19 35 37 41	14 20 14 34 36	30 36 43 40 38	48 44 45 42 38	83 76 62 48 45	82 86 84 83 86	95 97 93 83 81	86 86 79 80 84	96 96 96 92 85	73 84 89 74 74	53 58 61 69 62	35 40 43 34 33
6 7 8 9 10	19 36 28 36 38	41 33 34 31 39	50 38 36 39 36	49 45 50 48 53	77 79 90 91 92	92 90 76 73 <b>7</b> 6	84 80 81 67 84	97 88 95 97 94	67 74 78 83 90	54 49 53 57 68	52 46 34 32 47	47 48 38 49 53	6 7 8 9 10	37 35 42 34 37	35 46 51 48 61	47 56 62 66 57	38 55 61 54 60	54 69 72 75 62	91 92 84 87 88	88 94 96 87 77	85 87 79 78 84	84 69 77 81 66	64 68 69 73 78	43 51 54 45 38	31 27 19 27 18
11 12 13 14 15	37 37 22 26 26 26	32 26 31 31 45	26 24 26 32 37	81 85 78 74 82	90 87 83 80 76	82 82 81 82 74	89 89 93 88 87	91 83 82 86 89	89 86 71 76 68	58 61 56 70 76	50 46 33 44 60	51 59 47 38 31	11 12 13 14 15	- 33	58 44 42 39 33	53 59 59 53 50	70 72 69 67 70	73 65 70 75 67	91 85 78 84 68	77 84 84 94 101	85 82 82 84 84	73 78 79 81 83	69 64 60 46 57	41 45 44 44 41	30 27 24 15 27
16	35 42 36 34 35	21 19 29 20 15	36 41 40 33 34	89 88 85 74 66	80 77 76 65 68	78 81 84 89 87	75 76 80 72 79	85 78 78 74 76	72 74 70 61 65	47 40 44 50 51	69 70 67 43 32	36 35 36 35 30	16 17 18 19 20	42 37 44	31 41 43 31 33	71 56 51 70 52	74 80 51 59 50	72 68 70 71 79	72 81 87 77 82	99 95 89 88 90	83 86 77 82 81	81 74	69 67 54 45 69	46 48 55 48 51	38 37 35 32 41
21	36 37	19 37 39 42 33	43 41 32 36 57	67 61 61 75 75	76 80 72 86 84	86 83 72 77 90	86 83 72 66 79	84 82 74 80 81	67 56 62 72 72	46 55 54 46 55	41 41 52 57 65	30 30 29 25 28	25	38 33	31 30 34 27 29	59 66 63 46 55	63 59 57 59 49	81 76 78 82 75	74 82 86 92 84	87 89 93 97 87	88 93 95 82 81	1	57 47 53 67 65	68 62 23 28 32	39 45 40 33 32
26. 27. 28. 29. 30.	33 36 30 46 52 38	50 64 48 37	52 40 57 65 64 66	76 75 82 74 72	76 83 68 72 72 71	84 84 79 84 86	84 87 87 91 93 83	75 70 76 79 82 77	78 66 57 64 57	69 71 77 78 69 58	67 68 34 23 25	36 35 .39 38 42 47	26	33 29	38 34 36	60 65 65 50 39 45	60 63 62 68 70	77 81 76 72 71 76	86 78 72 89 94	85 94 85 88 78 79	73 73 83 91 93 95	80	54 47 52 59 48 46	28 33 34 35 32	29 32 26 54 52 24

TABLE 7.—Daily maximum temperatures (°F.), Wauseon, Ohio, 1883-1912—Continued.

Day.	Jan.	Feb.	Mar.	Apr.	Мау.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
	1809											1901													
1 2 3 4 5	23 34 43 53 38	19 32 27 26 24	39 47 50 37 36	31 33 41 45 46	85 87 71 67 72	77 78 83 91 94	92 94 96 97 86	88 91 84 88 76	84 91 91 · 83 92	57 63 77 73 70	55 41 36 47 46	52 45 42 33 22	1 2 3 4 5	22 27 19 37 33	22 34 31 31 24	40 40 53 41 16	54 40 43 61 57	80 86 65 76 83	67 68 74 81 86	97 97 94 97 90	85 88 86 83 82	71 80 87 91 91	82 67 59 58 64	61 63 64 40 39	63 53 31 28 31
6 7 8 9 10	28 20 38 32 20	19 17 9 -2 2	25 30 29 45 45	46 40 44 50 60	73 71 69 78 75	96 93 82 83 73	83 84 76 85 83	84 83 83 87 90	94 73 78 70	69 66 59 68 81	52 53 55 60 55	36 40 49 45 55	6 7 8 9 10	37 36 52 51 45	21 27 25 29 28	20 40 41 42 53	50 50 61 58	75 75 68 72 72	74 61 71 75 81	85 72 82 84 96	84 92 92 97 88	93 96 73 74 79	68 74 78 71 73	49 48 50 51 49	34 35 45 42 31
11 12 13 14 15	22 36 44 41 41	8 7 16 21 42	66 58 31 32 52	71 75 81 69 58	73 79 66 66 64	85 88 92 90 78	92 94 75 79 74	96 93 83 79 84	78 81 71 69 78	65 79 84 89 87	45 43 51 47 49	60 56 33 26 27	11 12 13 14 15	34 35 36 36 47	28 27 26 30 36	41 42 47 35 33	61 60 56 61 63	65 56 65 67 72	89 98 83 86 73	87 82 84 88 93	85 87 92 97 92	69 82 78 78 76	81 71 59 55 61	60 57 52 43 36	38 39 57 38 13
16 17 18 19 20	99	49 53 39 46 53	39 49 50 33 33	55 71 75 69 80	85 76 65 61 65	79 82 81 92 90	86 82 83 87 90	88 93 96 97 93	93 92 71 59 65	82 69 64 54 55	56 61 62 56 57	26 39 46 50 40	16 17 18 19 20	49 30 23 22 52	29 30 37 27 22	38 54 70 53 58	68 63 50 46 47	77 83 77 64 62	78 85 86 85 82	97 99 95 90 96	87 80 86 87 85	75 66 62 65 66	52 51 57 72 64	36 39 42 39 44	6 16 11 12 17
21	41 38 50 37 36	45 40 33 33 39	36 50 32 38 41	85 77 65 79 75	65 64 68 77 81	82 98 93 76 85	93 89 88 96 78	89 93 91 95 92	70 69 67 76 63	59 74 82 79 80	1	48 48 36 33 17	21 22 23 24 25	47 39 38 38 29	24 17 19 25 32	29 47 69 63 72	40 54 59 65 68	62 70 80 73 52	83 90 87 95 94	101 99 93 97 90	85 87 88 84 85	71 79 84 89 72	71 79 82 58 59	45 45 40 35 39	11 33 36 36 40
26	41 17 24 14 13 12	62 34 44	39 41 32 36 31 39	84 85 86 91 90	80 77 79 76 81 81	84 90 85 77 83	90 87 85 86 81 84	82 88 83 89 93 92	57 64 68 54 51	77 62 59 55 61 60	52 41 42 48 54	19 24 22 19 14 13	26	27 33 29 24 33 23	26 25 32	51 40 45 44 36 52	75 74 81 84 86	53 59 54 62 65 75	91 94 90 89 93	91 99 96 89 92 88	84 85 88 91 83 68	88 84 77 82 75	67 57 61 70 78 74	36 35 36 43 45	34 35 34 33 33 39
		<u>'</u>			<u>.</u>	19	00	<u></u> -	<u> </u>		<u>'                                    </u>			1902											
1 2 3 4 5	18 24 33 36 40	11 22 34 33 31	36 36 36 37 19	55 46 57 46 62	71 81 56 55 64	77 72 69 75 82	82 84 87 92 91	82 84 86 92 99	94 90 86 87 93	74 85 92 90 92	64 62 63 67 59	38 38 58 39 38	1 2 3 4 5	31 43 25 29 34	32 29 11 12 8	42 35 36 36 42	36 36 50 51 59	64 79 78 88 63	87 89 77 78 74	76 82 90 93 93	87 90 90 84 85	86 80 85 71 75	67 61 63 60 59	73 76 63 68 59	50 44 49 34 33
6 7 8 9	38 47 36 45 44	38 49 64 25 42	48 35 45 50 42	70 79 57 44 46	79 81 76 58 66	80 85 79 74 82	88 91 73 75 80	97 96 96 96 98	96 81 88 88 96	89 70 61 64 67	53 50 40 40 38	41 38 35 37 29	6 7 8 9 10	43 42 46 46 39	25 25 21 18 31	47 48 43 43 61	52 44 52 61 66	85 64 76 57 46	85 84 69 76 80	94 94 94 91 79	75 76 82 85 83	80 82 88 69 74	71 66 73 59 69	59 51 61 67 54	38 33 21 21 36
11 12 13 14 15	31 32 33 36 40	47 45 41 25 28	32 32 40 30 29	38 35 38 57 65	78 86 88 90 91	81 74 85 81 73	85 78 82 88 91	96 85 88 87 86	95 81 85 83 90	69 65 73 75 78	1	27 37 36 25 29	11 12 13 14 15	31 24 26 37 41	23 28 29 30 25	61 68 48 51 52	60 48 46 45 55	58 79 58 63 65	84 89 83 90 93	82 84 89 93 83	76 80 69 78 75	72 52 59 68 69	70 74 62 49 64	65 72 74 72 59	34 26 25 23 41
16 17 18 19 20	35 35 51 47 46	22 22 21 30 39	23 15 45 47 31	67 60 63 71 70	90 87 64 67 74	77 80 80 79 83	87 88 82 86 89	86 88 93 97 93	72 59 74 73 79	57 60 71 61 70	63	30 36 42 48 83	16 17 18 19 20	31 40 42 31 42	İ	53 25 24 38 50	59 63 68 66 67	70 79 87 92 89	75 79 80 80 70	84 95 78 84 84	76 81 87 87 88	72 82 66 60 74	59 59 70 74 66	. 49 46 50 57 61	43 43 47 44 42
21	56 49	36 34 41 37 21	39 36	70 65	75 80 81 81 82		80 87 93 85 81	83 83 86 88 90	71 75 78 79 94	73 75 69 73 75	1	29	21 22 23 24 25	33 33	í	54 51	81 85 72 65 66	81 93 74 79 76	65 67 73 74 67	72 83 84 86 91	82 73 79 80 86	83 86 74 68 74	59 75 72 78 64	58 56 52 52 43	46 41 30 37 19
26	28 37 17 21		38	70 76 81 83 68	85 79 72 72 82 76	87 86 88 81 77	78 80 87 84 86 90	89 84 86 90 87 90	92 70 74 67 74	81 63 71 81 72 77	42 38 43 33 44	36 38 26 34	26	39 28 16 13 25 30		67 60 62 48	71 65 69 68 68	68 58 61 71 83 77	68 71 63 69 76	92 92 81 86 90 91	87 86 84 85 92 90	77 76 72 77 64	80 62 52 52 65 66	38 33 40 39 42	20 26 31 31 26 29

Table 7.—Daily maximum temperatures (°F.), Wauseon, Ohio, 1883-1912—Continued.

Day.	Jan.	Feb.	Mar.	Apr.	Мау.	June.	July.	Aug.	Sépt.	Oct.	Nov.	Dec.	Day.	Jan.	Feb.	Mar.	Apr.	Мау.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
		''				19	08			······································									19	05					
1 2 3 4 5	41 34 36 33 31	41 54 33 36 33	28 44 42 43 49	60 76 45 36 49	51 67 49 64 72	58 73 78 82 77	95 95 93 97 85	76 86 91 80 88	74 86 88 88 88 69	78 66 83 74 77	71 65 70 71 53	30 23 31 32 25	1 2 3 4 5	56 43 19 25 31	23 8 18 17 16	31 38 37 39 37	52 52 64 51 51	54 81 84 88 76	79 73 75 82 88	87 86 83 85 86	79 81 86 84 86	75 79 71 66 72	75 69 81 79 77	37 41 45 51 52	33 36 30 31 32
6 7 8 9 10	26 36 26 20 18	36 33 32 37 49	47 65 46 40 45	64 64 66 69 56	76 66 68 83 82	77 77 87 77 78	88 90 96 97 94	84 73 84 82 85	72 77 92 92 80	75 77 57 62 62	40 42 55 65 54	30 33 32 34 30	6 7 8 9 10	29 27 22 30 16	21 20 34 34 24	34 38 37 45 35	46 40 53 72 69	76 65 74 57 57	87 63 75 74 69	87 81 80 76 73	87 89 87 93 92	78 79 81 82 67	67 76 85 83 69	53 40 37 38 44	42 48 52 45 38
11 12 13 14 15	22 7 15 29 34	42 41 36 33 29	48 46 63 67 55	64 58 50 50 47	83 86 85 83 78	58 65 70 75 79	88 83 80 74 78	75 75 76 78 78	81 93 85 92 93	60 67 67 71 72	59 50 44 47 51	22 40 24 14 15	11 12 13 14 15	33 41 26 19 18	20 32 14 16 8	35 34 36 26 38	50 58 61 46 41	63 67 73 83 73	76 75 80 86 88	81 87 84 88 88	91 94 88 77 72	80 84 69 70 85	54 51 74 73 70	55 60 50 36 50	43 45 38 30 33
16 17 18 19 20	46 36 22 25 42	21 9 8 16 27	50 70 80 79 73	56 62 65 61 63	85 93 90 86 87	81 73 81 80 68	84 86 72 83 79	82 85 89 88 83	73 62 63 71 80	62 54 54 65 68	64 44 24 30 33	24 27 30 36 36	16 17 18 19 20	24 32 37 39 36	22 27 26 35 36	63 69 68 57 32	39 45 47 63 57	70 59 58 66 66	81 91 90 89 83	92 94 92 90 86	75 78 85 75 84	82 76 88 87 73	63 72 68 65 65	41 59 47 43 41	36 34 35 36 39
21 22 23 24 25	34 37 33 21 28	32 31 39 36 41	46 54 56 38 48	57 43 59 47 55	87 80 83 84 80	79 66 70 72 80	85 78 86 91 94	87 91 87 96 93	83 86 84 63 74	65 65 46 48 59	38 44 41 34 28	39 33 41 39 32	21 22 23 24 25	34 25 22 23 17	35 35 33 37 36	34 53 68 62 70	54 57 64 68 66	73 71 70 76 78	81 78 70 82 89	77 82 81 71 77	89 82 90 87 76	82 86 73 79 68	48 51 60 51 43	42 49 55 62 47	42 35 31 30 31
26 27 28 29 30 31	48 43 43 59 37 39	49 46 45	62 62 47 45 52 68	63 70 78 82 72	87 85 79 67 57 65	82 79 83 91 92	85 81 92 89 79 71	83 66 71 81 70 72	87 63 66 76 79	46 54 60 68 67 69	23 30 25 33 30	12 31 21 26 15 25	26 27 28 29 30 31	21 27 22 19 21 29	33 38 38	56 73 81 79 62 71	60 70 77 66 55	68 73 80 81 64 71	73 74 75 79 87	80 85 83 84 79 85	80 81 86 87 87 87	70 84 92 89 85	60 50 47 44 49 43	50 42 67 63 25	48 49 45 42 36 35
		!		<u></u>		19	04												19	06					<del>,</del>
1 2 3 4 5	26 15 13 17 21	19 27 13 10 39	34 54 54 32 47	57 38 38 49 59	64 66 74 74 79	61 70 86 84 82	67 75 81 87 83	85 77 81 88 85	86 89 77 77 77	70 58 59 67 61	68 65 69 66 51	35 29 27 33 34	1 2 3 4 5	36 43 52 41 34	31 16 33 36 15	53 45 49 33 33	40 51 59 68 57	76 78 66 79 63	80 76 84 89 84	84 86 69 83 73	84 88 92 93 94	79 81 79 77 82	65 70 70 73 71	41 51 46 48 51	40 35 37 38 37
6 7 8 9	30 33 37 29 21	48 50 16 13 15	44 43 42 41 49	48 61 57 46 39	81 84 77 62 58	77 73 64 68 69	78 75 85 82 83	81 82 73 87 83	78 85 71 77 87	53 58 65 79 79	46 54 45 44 37	36 36 36 25 25	6 7 8 9 10	33 35 23 32 42	12 18 28 32 22	32 37 35 43 35	42 49 69 54 57	59 50 60 49 59	90 89 87 85 78	78 85 84 86 87	89 82 80 86 85	85 90 90 91 91	54 59 78 53 43	55 51 61 51 44	53 23 37 33 36
11 12 13 14 15	20	18 18 27 35 16	44 30 34 31 35	51 39 39 47 55	63 80 75 55 49	75 82 85 79 82	86 78 82 85 87	79 82 90 82 90	90 65 76 64 66	63 53 50 61 61	44 45 38 41 50	24 26 20 25 26	11	40 43 36 38 51	32 53 49 44 22	31 28 28 25 25 25	48 61 70 84 64	74 84 78 62 87	68 66 68 77 74	83 86 91 91 83	85 78 80 83 84	1	44 52 71 76 73	38 35 33 39 40	35 47 45 54 54
16 17 18 19 20	39 39	7 15 13 21 26	32 36 41 35	39 51 56 35 45	62 63 51 54 70	72 79 85 76 84	92 96 93 89 86	86 85 79 71 78	73 84 74 80 67	69 76 78 79 61	56 58 60 65 57	27 31 32 31 34	16 17 18 19 20	37 33 39 34 67	30 41 35 49 57	28 29 35 28 31	45 53 67 74 75	89 90 86 68 66	82 78	1	86 87 85 92 91	83	77 77 69 65 62	45 50 52 38 39	34 29 28 29 31
21 22 23 24 25	34 34 29 12 7	36 33 38 33 16	41 66 52 63 64	50 67 78 71 47	80 82 79 79 91	80 73 84 88 90	83 81 75 78 82	86 76 79 84 84	59 59 73 70 75	57 48 49 60 52	50 57 57 45 40	32 42 53 39 26	2122232425	55 31 33	51 47 63 56 45	24 29 38	71 61 51 61 63	77 91 84 90 90			93 82 92	!	1	50	
26	18	26 39 48 36	38 27 38 55 47 69	50 59 55 68 59	83 72 78 82 61 52	78 70 73 83 79	87 84 79 77 88 85	72 78 83 74 76 76	76 73 76 8 <b>3</b> 68	50 44 55 63 50 61	37 27 35 50 29	36 59 18 27 43 51	26	38 41 45	34 27 30	40	77 77 75 65 78	84 55 64 70 68 85	88 90 94 97 83	82	78 84 77	70 73 75 80 64	64 44 40 38 34 37	40 43 44	34 35 49

Table 7.—Daily maximum temperatures (° F.), Wauseon, Ohio, 1883-1912—Continued.

	Day.	Jan.	Feb.	Mar.	Apr.	Мау.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Day.	Jan.	Feb.	Mar.	Apr.	Мау.	June.	July.	Aưg.	Sept.	Oct.	Nov.	Dec.
-			,				19	07												19	09					
	1	34 40 51 39 47	34 37 14 15 19	47 47 32 39 33	37 48 67 58 38	51 58 64 51 57	54 55 70 61 67	83 68 79 81 81	83 72 68 76 74	84 77 78 77 72	67 83 73 68 65	53 53 45 49 55	30 29 30 29 31	1 2 3 4 5	26 34 48 51 49	23 37 38 51 53	52 41 37 32 40	45 51 45 54 76	43 45 51 58 79	80 76 77 76 81	85 86 72 73 76	86 84 89 86 86	68 76 65 68 70	62 66 68 66 65	64 59 55 58 56	54 48 46 57 60
	6 7 8 9	55 60 59 33 31	23 27 28 35 34	32 33 36 36 39	41 56 43 37 40	59 60 60 73 55	68 60 71 76 74	88 85 87 87 85	86 88 75 84 87	76 72 78 76 71	70 71 58 63 60	41 46 54 53 41	43 51 58 53 48	6 7 8 9 10	34 15 27 34 41	53 43 38 43 34	49 47 36 55 55	63 48 41 38 37	81 63 69 65 53	79 70 66 72 70	79 81 83 89 89	85 90 92 87 82	72 78 81 73 79	73 79 80 82 68	59 57 58 54 64	34 29 20 9 17
1 1	1	33 38 36 42 31	24 23 55 41 44	45 49 43 34 50	42 38 41 39 47	52 71 82 84 64	79 70 59 81 81	81 79 85 86 81	91 87 84 82 88	71 78 83 86 90	52 46 40 57 48	40 43 39 36 44	29 33 32 35 36	11 12 13 14 15	34 17 24 35 32	30 44 41 27 22	36 34 44 38 37	53 66 42 49 57	60 69 74 77 81	75 75 81 66 71	82 91 84 86 84	81 79 87 76 86	78 84 92 90 75	54 41 46 49 42	72 60 74 75 62	25 34 43 33 29
1 1 2	16 17 18 19 20	27 28 37 64 51	43 40 51 46 39	59 54 44 58 45		1	84 90 89 83 85	89 89 87 90 87	87 87 82 88 78	87 79 74 89 85	66 73 55 59 44	40 48 51 41 50	32 33 32 26 38	16	21 30 26 33 35	21 29 42 39 35	38 38	73 72 79 51 51	69 69 64 68 69	81 75 69 79 86	79 79 75 77 83	87 77 79 84 77	50 81 74 82 87	50 55 48 52 58	63 40 34 50 59	28 32 16 14 20
	21 22 23 24 25	17 20 16 17 25	35 30	65 79 74 67 66	54 60 52		89 91 89 81 86	86 83 85 88 90		69 66 75 71 55	1	52 44 41 46 51	33 30 34 37 37	21	47 54 64 62 46	43 46 43 48 27	40 44 50 51 33	67 52 48 60 67	68 69 72 67 69	86 86 89 87 85	87 85 74 79 84	76 80 87 91 92	77 81 70 70 64	67 55 44 41 52	57 59 35 40 39	19 27 29 23 30
	26	18 22 26 26 21 21	32 	81 71 66 69 54 43	73 78 41	71	76 77 80 81 86	76 79 83 85 83 82	80 74 76 79 85 84	62 56 64 55 66	45 45 43 56 46 50	36	45 57 53 34 42 35	26	45 42 36 36 26 14	47 39 30	48 45 38 37 42 42	60 57 45 58 63	76 75 69 82 79 81	88	82 82 92 89 86 82	87 91 92 76 75 82	60 61 60 55 61	66 48 45 47 71 77	53 62 65 45 48	29 24 21 15 11 26
			<u> </u>	<u> </u>	•		19	908				·	<u>'</u>					1	1	19	910	!	<u> </u>	!	I	
	1 2 3 4 5	39 37 34 38 30	26	35 35 33 34 36	48 31 38 52 49	49 45 57 57 51	74 78 78 80 86	83 81 81 83 87	86 92 96 94 87	85 70 75 88 87	57	55 63 53	50 25 33 35 33	1 2 3 4 5	38 37 26 15 35	36 44 42 38 29	50	68 65 69 74 76	75 65 53 57 58	56	97 95 87 77 88	85 84 90 79 77	68 81 85 80 87	74 69 87 72 71	64 47 37	32 31 29 30 24
	6 7 8 9 10	40 42 34 28 39	26 18	62 39 39 38 51	56 63 53	62 56 66	85 90 89 75 75	93 81 76 81 88	87 77 77 81 82	84 74 80 92 94	83 72 60 62 55	54	35 33 24 28 35	6 7 8 9 10	17 14 27 24 26	17 33 42 37 28	42 43	47 51 66 68 69	63 61 62 69 70	72 78 72	93	83 75 85 80 84	66 71	64 60 69 59 66	33 41 46 64 58	26 26 25 27 27
	11 12 13 14 15	36 36 30 30 37	46 47	55 60 50 57 52	57 68 77 60	80 64 59 81	72 78 91 72 66	94 95 93 83 80	87 92 84 88 76	95 89 84 76 75	1	39 41 31 30	38 35 37 44 50	11 12 13 14 15	27 32 30 28 28	29 25 24 34 48	34 41	80 52 64 77 75	58 58 48 54 63	75 82 84 87	89 86 83 87 91	90 92 94	75	74 62 69 80 75	35 38 39 35 39	1
	16 17 18 19 20	35 43 43	34 30	39 51 37 34 37	58 65 60	85 77 69 77	71 77 93 91 91	86 86 82 79 76	75 72	1	80 82 85 64 67	70 50	38 35 41 36 34	16 17 18 19 20	41	1	66 68	67 54 52 45 43	71 64 70 79 73	89 92 92 93	90 79 79 84 88	97 73 79	82 77 79	78 82 85 81 62	35 31 32 42 43	24 32 40 33 23
	21	31 27 34	32 31 37	1	77 79 76 73	1	1	82 88 87 83 83	1	92 94 89 89 92	ì	1	39 36 38 48 37	23 24 25	38 38 33 35	1	1		1	1	91 91 88 86	83 82 91 83	1	1	1	35 34 26 22
	26	30 36 16 22	34 22 31 29	45	69 51 47 50 48	84 87 88 82 77 - 59	78 86 87 84 80	85 89 88 89 93 86	76 80 81 85 91 94	91 89 53 56 68	60 54 54 52 46 44	62 41 44 42 63	33 39 42 48 47 27	26	31 31 29		- 81 - 75	42 57 56 82 65	63 70 79 79 54 46	91 77 86 84 95	90 87 86 86 81 78	72 75 80 77 90 75	74 67 70 72 77	64 66 42 42 56	41 34 35 34 30	31 37 35 33 32 39

Table 7.—Daily maximum temperatures (°F.), Wauseon, Ohio, 1883-1912—Concluded.

Day.	Jan.	Feb.	Mar.	Apr.	Мау.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Day.	Jan.	Feb.	Mar.	Apr.	Мау.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
						19	11			<u></u>									19	12					
1 2 3 4 5	18	38 43 34 36 26	40 39 38 37 39	33 39 36 59 42	71 47 55 60 65	79 79 77 79 78 85	94 98 99 99	85 85 80 90 95	89 93 90 80	58 57 69 70 57	47 36 43 45 52	36 <b>84</b> 29 29 29 38	1 2 3 4 5	28 26 23 16 5	30 20 10 3 16	23	38 35 43 64 71	60 73 73 76 77	84 69 83 74 77	79 87 85 88 90	75 71 67 72 78	93 93 83 86 94	65 71 66 77 80	44 37 44 53 60	56 56 39 50 58
6	41	28 23 35 36 24	38 30 43 58 52	66 45 40 50 58	72 78 81 82 89	79 71 76 87 96	93 87 96 95 89	93 94 88 93 95	70 79 82 83	80 65 63 60 64	59 49 50 53 63	45 46 50 52 59	6 7 8 9 10	4 5 20 6 12	24 24 16 14 7	37 35 27	74· 40 54 68 59	81 82 72 65 76	71 64 74 76 79	88 88 90 92 88	79 78 77 80 77	93 83 90 95 95	84 66 62 74 63	55 55 54 49 62	58 35 35 29 41
11 12 13 14 15	52 34 36	41 36 40 50 41	58 56 44 55 41	59 55	68	88 76 67 77 81	92 85 84 87 88	81 77 82 90 84	85 69 68 72 81	56 66 64 60 73	67 24 30	58 39 40 34 34	11 12 13 14 15	10 9 12 19 16	19 18 24 35 37	32 35 40	74 69 46 74 78	75 65 58 60 63	86 81 72 84 86	86 89 86 91 94	75 82 85 83 80	80 82	81 71 63 65 60	70 66 59 37 40	38 43 43
16	21 22 35	59 38 28	27 47 41 52 55	55 64	94 95	68 81 86	81 75 83 81 81	79 75	86 85 73	76	50 37 33	39 33 37 38 37	16 17 18 19 20	. 39	31 38 48 41 36	49 45 49	52	57 65 73 66 83	78 74 64 72 78	79 87 86 73 76	81 87 84	73 65	66 72 65 62 64	50 45 50 57 62	51 37 30 35
21 22 23 24 25	. 40 . 27 . 37	33 43 47	38 42	50 53 61	89 84 81	94 97 86	84 82 80 72 72	87 69 57	73 81 83	49 48 59	39 39 32	42 45 38 43 37	21 22 23 24 25	. 35 . 36 . 23	23 37 43	29 36 33	59 62	83 86 89 77 76	77 80 84	80 82 81 91 88	72 86	60 71 75	76 67 48 54 62	59 52 52 34 34	32 33 36
262728293031	. 49 . 53 . 42 . 49	37 29	53 31 37 34	71 70 72 73	97 96 77 3	82 75 78 85	81 88 79 87	84 73 70 70	73 70 67 61	45 48 53	49 3 45 3 33 3 31	42 25 33	26 27 28 29 30 31	21 23 28 26	25 26 23	37 37 3 43 43	59 45 44 61	72	80 88 92 73	84 82 76	71 69 67 74	64 64 56	59 63 71 71 56 46		33 37 37 36

Table 8.—Daily minimum temperatures (°F.), Wauseon, Ohio, 1883-1912.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Day.	Jan.	Feb.	Mar.	Apr.	Мау.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
						18	88												18	885					
1 2 3 4 5	16 2 8 6 14	- 4 5 13 12 2	32 30 16 14 7	24 18 22 34 44	40 34 45 44 44	34 42 62 55 55	48 68 71 69 66	52 58 47 44 44	51 63 45 40 40	29 39 33 29 43	31 26 29 34 46	29 14 9 20 26	1 2 3 4 5	5 2 4 12 22	$ \begin{array}{r}     -6 \\     21 \\     28 \\     -3 \end{array} $	27 20 26 31 20	29 31 25 12 34	39 39 21 34 45	52 46 59 60 60	46 51 48 51 64	64 61 60 56 50	44 32 46 45 44	56 55 43 38 36	33 35 31 27 44	35 32 28 28 14
6 7 8 9 10	17 21 0 -16 -10	$\begin{bmatrix} -2 \\ 12 \\ 0 \\ 7 \\ -12 \end{bmatrix}$	25 12 3 19 23	31 30 25 39 39	33 54 50 46 50	65 61 51 60 59	. 66 59 56 43 48	46 44 43 47 54	36 48 36 30 30	46 43 38 55 53	36 21 33 45 40	25 40 30 24 25	6 7 8 9 10	30 27 25 24 15	-14 9 14 10 -19	16 22 0 6 16	27 38 27 21 18	52 40 34 35 32	50 66 49 38 43	64 64 70 68 53	51 61 55 66 63	34 45 54 52 49	36 30 33 27 31	52 40 37 37 32	5 7 6 24 16
11 12 13 14 15	- 4 - 6 13 - 1 - 8	16 0 4 23 34	16 19 27 27 22	42 42 39 44 48	32 36 27 42 42	54 61 52 42 46	64 65 64 64 62	53 52 59 47 54	35 41 45 52 52	48 53 48 40 32	26 24 26 11 11	19 21 34 17 12	11 12 13 14 15	24 13 6 2 19	-24 - 6 -24 -17 5	7 18 9 17 17	33 30 25 18 32	27 41 36 39 41	44 56 65 62 68	53 56 66 57 62	54 54 66 52 45	50 51 64 56 50	32 48 51 46 41	31 55 32 26 26	12 4 23 14 7
16 17 18 19 20	15 22	37 16 12 20 24	13 27 14 7 -17	41 37 45 42 35	38 35 52 62 52	61 66 68 58 55	54 60 51 47 50	50 55 66 69 65	55 50 42 49 57	28 27 47 46 33	6 18 35 28 36	11 5 14 6 3	16 17 18 19	14 -10 -18 -25 -23	-11 -15 - 9 - 7 -13	$\begin{bmatrix} -\frac{4}{2} \\ -\frac{6}{6} \\ -\frac{7}{7} \end{bmatrix}$	35 34 37 41 45	47 49 52 42 43	55 43 44 48 56	61 64 54 56 69	41 44 59 56 43	43 36 56 46 50	36 36 35 46 38	29 25 47 34 33	22 27 18 24 15
21	-10 -18 -13 - 7 2	19 26 17 19 24	- 5 - 8 15 - 1 17	37 36 30 21 25	32 33 36 35 56	52 53 56 65 60	61 70 67 60 53	56 65 54 41 45	57 56 55 48 42	31 29 26 37 42	56 42 40 35 32	- 1 2 8 22 19	21 22 23 24 25	-13 -29 -14 16 10	-14 -17 0 4 16	- 6 - 2 2 20 13	54 54 55 47 37	52 61 60 56 57	57 41 39 43 53	71 69 67 70 69	61 57 60 59 51	43 45 31 40 42	30 33 31 24 26	28 29 28 31 23	29 37 39 28 21
26	) OI	14 10 23	28 26 26 26 28 22	34 36 34 20 25	49 38 48 47 46 46	54 57 60 58 56	56 66 56 50 44 48	54 47 56 52 44 52	29 40 37 40 39	37 27 43 49 42 36	29 12 23 22 29	18 16 10 9 34 27	26	$     \begin{array}{r}       -11 \\       -13 \\       -27 \\       -26 \\       8 \\       -2     \end{array} $	23 26 24	28 32 25 24 27 31	40 38 38 27 43	49 52 48 56 58 59	59 62 61 54 40	59 58 58 69 67 65	44 41 40 44 54 43	48 47 52 57 58	32 44 46 39 23 14	21 26 16 23 23	14 14 32 33 35 35
		1	!	1		18	84	•		·									18	86	<u>.</u>		' '		
1 2 3 4 5	8 3 -19	0 25 21 21 21 28	- 4 - 6 - 8 5	35 31 26 29 25	41 41 32 48 57	50 56 54 54 58	64 55 59 64 60	50 57 64 53 49	42 49 59 65 60	57 54 56 61 65	33 27 21 35 28	2 4 23 26 34	1 2 3 4 5	32 31 37 31 17	- 4 -10 -12 -18	5 6 9 17 16	28 23 19 24 20	43 38 38 56 50	46 61 46 36 44	51 52 50 55 57	67 54 43 46 60	36 45 51 54 64	34 29 30 42 45	34 43 45 29 40	$     \begin{array}{r}       6 \\       -2 \\       4 \\       4 \\       -1     \end{array} $
6 7 8 9.	-25 -19 - 5 7 2	31 24 23 25 21	5 19 15 18 - 2	22 23 28 30 30	54 48 51 45 38	58 58 58 52 50	52 49 48 45 59	44 52 42 40 42	65 63 65 67 64	55 50 39 30 30	19 27 22 21 42	42 32 31 18 12	6 7 8 9 10	9 3 10 11 -8	13 23 22 30 36	16 19 26 21 24	26 26 14 22 36	38 45 34 51 52	47 58 45 51 57	58 68 58 48 62	58 48 50 53 58	58 56 58 64 58	42 39 43 49 46	25 22 24 27 36	2 8 18 13 31
11	4 6 10 18 4	21 28 30 0 6	27 27 27 24 18	28 28 38 40 47	42 40 46 37 49	53 54 54 50 50	49 64 56 44 52	42 56 56 56 56 54	58 46 46 38 44	37 55 45 32 25	34 31 27 21 25	24 22 15 21 15	11 12 13 14 15	-13 - 4 2 4 13	40 36 33 31 20	20 33 27 24 27	37 38 40 44 47	49 52 52 61 44	46 46 54 68 62	55 56 54 63 58	67 60 66 63 50	42 54 37 55 49	46 48 46 52 44	30 27 21 22 25	26 35 30 28 7
16	12 20 6	13 30 33 32 14	18 40 30 32 31	34 31 26 40 35	32 35 48 51 46	52 57 65 63 65	48 47 50 54 47	56 58 58 60 64	56 46 42 35 43	47 37 33 35 46	24 24 22 16 16	12 - 3 -17 -32 -14	16 17 18 19 20	22 9 14 6 7	8 6 28 16 9	26 24 30 34 51	47 50 48 45 47	37 32 38 43 47	71 62 41 42 52	47 52 48 47 50	62 64 57 46 49	64 48 39 50 38	31 40 45 41 55	21 38 20 18 30	-2 -2 24 14 0
21	7 6 -20	17 13 12 13 24	32 29 42 34 42	31 33 35 40 34	46 56 63 57 47	64 62 64 64 53	45 49 69 65 65	63 51 48 39 54	30 49 55 57 44	55 39 22 18 24	22 26 25 5 12	11 - 3 -14 - 3 -18	21 22 23 24 25	17 - 2 -14 - 4 16	18 16 24 20 16	32 28 21 21 21 42	43 45 50 52 47	40 64 60 54 37	63 59 50 50 59	56 54 46 51 60	68 66 62 62 57	36 48 60 56 64	38 38 35 49 39	22 28 28 20 18	19 8 4 15 4
26	20 32 32	$ -8 \\ -7$	38 30 40 32 20 27	33 43 42 32 43	56 46 37 29 38 44	49 48 49 52 55	61 62 63 60 57 60	55 44 58 59 55	41 63 60 52 62	26 43 27 22 21 40	11 21 24 22 8	- 1 - 1 30 35 41 18	26	27 28 26 20 7 - 1	8 9 8	30 26 22 33 36 34	42 46 40 44 44	37 53 44 50 52 47	52 52 50 49 56	66 58 59 68 62 59	54 58 65 66 54 46	67 65 44 39 39	32 31 34 32 39 32	17 18 28 23 20	17 -3 -5 -3 -2 -12

Table 8.—Daily minimum temperatures (°F.), Wauseon, Ohio, 1885-1912—Continued.

Day.	Jan.	Feb.	Mar.	Apr.	Мау.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
						188	7		·····										1889						
1	- 1 -13 - 8 - 6 2	0 15 18 8 14	26 34 24 20 18	24 22 37 21 18	50 60 54 44 50	58 55 53 56 64	63 62 65 68 68	62 56 58 55 68	49 64 52 50 54	54 51 48 45 42	32 30 34 32 24	15 23 32 34 24	1	23 24 28 24 30	23 22 21 8	29 32 28 26 32	30 34 36 31 26	26 33 32 35 42	40 48 41 38 47	61 64 60 54 49	54 61 58 60 52	58 59 66 65 56	50 44 44 34 41	43 43 35 29 22	15 34 24 21 29
6	- 6 -20 - 8 - 8	23 33 34 24 31	32 33 26 28 27	19 33 27 32 42	51 54 51 51 52	66 64 63 60 50	60 60 64 66 55	57 49 44 51 65	64 52 42 39 34	42 51 60 62 48	33 40 34 26 33	22 28 24 26 37	6 7 8 9 10	32 30 32 27 18	0 8 17 7 5	28 30 15 23 26	19 23 26 41 33	49 58 59 61 64	40 58 63 62 53	54 56 61 63 65	49 49 52 66 54	48 42 44 54 59	36 22 18 34 30	22 30 39 42 41	25 29 43 34 36
11	-15 19 16 25 20	19 12 6 18 34	23 30 18 17 18	54 33 37 34 45	55 51 45 46 40	52 52 45 57 58	57 56 65 66 62	72 60 52 61 63	42 48 67 52 38	34 36 40 30 23	29 21 18 41 37	32 27 28 21 26	11	20 14 27 26 26 26	16 2 13 13 14	19 34 29 28 31	36 41 32 25 32	56 50 52 51 42	54 52 59 64	66 54 65 58 57	46 45 59 62 49	56 50 53 57 61	45 50 41 35 28	41 31 47 35 28	35 27 34 33 31
16 17 18 19 20	$\begin{bmatrix} -5 \\ -4 \\ 30 \end{bmatrix}$	29 24 28 23 23	19 19 18 25 20	35 28 28 17 32	48 54 45 40 49	62 67 63 64 63	72 74 70 63 58	61 60 60 54 50	51 49 42 50 47	29 50 36 24 29	24 30 24 18 18	. 22 19 27 26 30	16 17 18 19 20	34 29 22 12 20	30 29 11 1 - 2	31 33 35 33 29	34 33 44 57 49	58 66 66 56 47	63 66 61 68 54	61 51 65 70 61	48 48 46 59 62	52 44 38 38 47	28 44 25 26 31	17 22 35 41 44	32 43 36 33 36
21 22 23 24 25	32	22 21 25 18 14	32 21 14 30 23	38 47 36 30 34	58 56 58 57 50	57 53 48 46 46	64 65 57 47 56	58 65 60 51 43	55 50 36 25 43	32 27 36 29 21	8 16 35 33 37	12 5 7 9 4	21	10 1 22 26 19	0 1 - 6 - 7 - 2	32 29 26 30 26	33 33 51 41	39 36 30 43 39	58 52 46 45 48	54 58 54 53 46	57 49 46 53 54	34 28 42 37 49	23 36 25 17 40	44 36 33 34 31	31 29 22 36 39
26		10	15 23 14 7 7 7	35 32 42 41 32	45 44 48 45 58 53	51 48 50 52 58	55 59 65 60 61 64	53 48 40 39 39 44	44 49 53 58 55	15 23 24 25 19 26	37 24 11 9 13	8 19 0 0 - 4 16	26	28 22 18 1 20 21	16 22 17	23 35 23 22 10 30	35 32 43 39 35	35 49 32 38 36 39	60 63 63 60 64	53 56 63 60 53 54	54 53 51 52 53 61	36 36 38 39 54	37 34 27 36 41	16 31 20 16 9	30 22 24 33 16 15
			<u></u>		<u></u>	189	38	•	<u> </u>						·····		·		1890						
12345	. 11 . 13	22 14 28	32 31 20 12 10	32 32 23 24 40	31 23 40 46 45	35 40	60 54 55 68 70	63 54 69 70 74	45 36 46 46 45		53 54 37 32 44	30 30 30 26 28	1 2 3 4 5	. 24	27 28 39 38 29	16 14 18 13 5	21 23 38 35 28	40 33 47 47 41	49 58 70	64 59 58	65 59 72 71 62	58	44 53 49 46 60	30 35 26 29 27	23 7 20 10 19
6		19 1 - 8	9 12 16 22 35	25 30	44 44 55	43 44 58	62 69 62 60 54	46	59 47	43 38 38 23 24	42 27 42 44 38	27 27 35 34 28	6 7 8 9 10	26 20	21 23 18 5 13	9	33 44 44 39 28	34 29 28 48 37	60 53 39 48 64	62 68 58	52	52	53 49 43 43 51	39 46 37 40 32	12 12 6 10 24
11., 12. 13. 14. 15.	7 1	20 19	12 8 11	26 40	33 36	54 63	50 43 47	48	52 36 30	41		28 14 12 8 21	14 15	. 38 19 . 14 . 31	22 36 25	39 33 26 11	36	45	53 59 63	52 69 68 65	43 56 59 59	61 43 35 44	1	40	28 18
16. 17. 18. 19.		26	25 19 34	33 38 38	40 30 44 39 30	62 66 65	58 67 59 53	68 55 47 61	50 54 43	36 31 40	33	38 25 17 15 21		. 20	28 28 23	İ	28 32 22 26	43 44 44	64 64 59 51	62 59 54 52	62 51 55 48	41 43 51 40	1	37 33	21 15 21
21 22 23 24 25	-	7 23 3 21 1 27 2 28 0 19	16 1 - 6 5	32	40 42 44 49 7 54		1	54	42 42 51 45 44	[		10 6 24 34 40	22 23 24 25	12	15 28 34 39	33 22 28 39	1	62 59 59	1		51 41 43 50	1	I	1	1
26. 27. 28. 29. 30.		28	. [ 30	34 48 47 47 40	56 52 7 59 7 54 0 53	58 54 62 56 49	65 64 57 56 60 67	62 56 43 44 55 58	48 43 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	50 51 36 39 25 45	21 27 31 32 31	36 26 26 20 20 31	27 28 29	19 26 29	:  :::::	21 25 23 24	40 40 30 43 35	44 46 59	5 67	51 52 3 55 55 7 68 7 68	58 55 47 57 48 48	54 42 34 36 43	38 32 35 34 30 32	18 27 17 24 29	20 21 13 18 14 36

Table 8.—Daily minimum temperatures (°F), Wauseon, Ohio, 1883-1912—Continued.

Day.	Jan.	Feb.	Mar.	Apr.	Мау.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Day.	Jan.	Feb.	Mar.	Apr.	Мау.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
. <del> </del>	,	·				18	91	<u>'</u>		· · · · · ·	·								18	93					
1 2 3 4 5	42 17 5 9 23	31 27 9 0 8	- 4 10 19 12 - 3	39 36 32 25 20	39 41 39 37 28	59 60 60 50 40	50 48 56 52 49	58 59 54 51 52	49 53 55 47 54	39 57 63 54 42	36 21 15 18 34	18 36 40 36 35	1 2 3 4 5	30 15 1 - 5 -10	22 11 9 - 9 7	23 18 16 12 14	38 23 45 41 31	44 42 36 41 37	57 61 60 68 64	63 57 58 47 63	52 50 51 52 62	41 37 40 51 61	49 46 53 47 43	47 43 26 30 24	- 5 17 10 16
6 7 8 9	12 4 3 18 27	30 29 31 26 19	16 21 26 26 16	28 23 23 30 39	31 32 42 49 55	51 49 47 55 62	46 55 46 44 45	53 61 61 68 70	51 50 37 38 39	31 40 33 35 32	27 37 50 53 47	28 20 19 33 31	6 7 8 9 10	$-\frac{4}{0}$	30 0 - 5 12 27	15 34 29 35 30	30 36 42 32 37	35 34 33 45 41	54 44 50 56 64	54 62 65 58 55	60	53 61 55 49 57	49 47 52 58 50	30 28 37 31 40	7 5 10 29 17
11	29 25 17 14 10	18 24 26 22 22	37 26 17 5 0	39 37 39 52 42	45 38 35 38 38	61 50 44 48 63	51 57 59 68 57	71 64 51 62 52	44 61 54 41 61	41 33 31 35	37 33 28 27 29	26 23 29 36 40	11 12 13 14 15	-13 - 1 - 7 -13 -15	25 9 21 27 27	38 33 31 20 15	33 49 40 33 29	52 53 49 47 47	54 51 49 55 62	52 58 72 70 70	49 51 51	57 62 65 65 60	48 51 50 43 37	38 39 32 24 20	14 15 - 2 15 34
16 17 18 19 20	20 21 24 24 22	44 35 21 19 30	20 17 30 27 28	43 39 57 51 . 44	38 28 33 37 58	69 67 63 63 65	47 55 62 46 51	56 64 65 65 68	51 64 63 67 55	37 30 47 38 38	38 14 13 16 34	27 16 9 13 20	16	- 6 -14 - 1 - 9 - 5	21 15 13 6 - 8	22 15 25 22	29 36 40 39 38	44 43 41 35 53	63 58 58 56 64	65 62 58 56 58	60 62 52 54 51	50 37 56 61 47	24 26 28 32 45	18 32 27 21 16	24 21 12 20 2
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6 7 8 9 10	$\begin{bmatrix} 2\\7\\-7 \end{bmatrix}$	16 29 30 18 17	23 24 31 28 11	39 40 32 24 26	46 41 32 37 49	58 62 59 60 60	52 51 55 60 59	59 52 64 76 72	41 43 52 51 60	27 45 41 38 35	28 33 23 21 28	29 36 27 25 22	6 7 8 9 10	28 17 11 20 16	23 36 36 35 30	32 26	25 36 25 26 37	55 47 45 41 52	43 53	52 44 47 47 49	48 59 65 68 60	61 65 72 65 60	42 38 41 32 42	30 33 32 31 26	25 33 34 31 29
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16 17 18 19	14	5 5 31 31 30	12 16 14 21 17	27 39 32 30 32	57	66 68 67 68 63	46 48 53 63 67	62	47 41 45 51 46	51 48 46 41 34	33 44 31 25 15	25 28 26 24 7	1	34 18 29	1	38 52 48 39	35 41 43 56 44	53 67 39 33 38	56 59 57 51	62 62 67	53	43	46 42 28 43 51	34 22 18 15 12	39 81 19 26 30
21 22 23 24	19 19	1 30	11 26 29 26 27	•	42 42 43 54	68 66 70 66 56	55 63 63 72 68	52 51 59 58 63	52 61 62 65 59	40 34 30 26 37	26 20 17 14 26	14 14 3 - 7		20 20 0 6	1	35 31 22	38 38 42 40 33	44 40 46 38 48	62 65 68 64		42 48 56 68	F	1.	26 26 30 26 21	31 29 29 26
26	9 15 31	32	31 35 26 25 37 40	30 40 49 37 33	49 43 38 56 54 64	52 57 54 58 55	74 70 71 65 60 61	59 51 55 59 55 50	47 39 47 45 48	30 29 35 34 21 35	25 20 32 32 29	- 5 9 15 8 4 26	26	. 15	29	6 12 23 22 18 37	36 43 58 49 43	54 46 33 38 37 34	70 63 67 65 64	60 69 70 69 56 60	46 53 57 49	38 41 45 47 49	49 37 37 40 38 35	24 30 15 12 31	13 11 - 5 6 11 11

Table 8.—Daily minimum temperatures (°F.), Wauseon, Ohio, 1883-1912—Continued.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Day.	Jan.	Feb.	Mar.	Apr.	Мау.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
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1 2 3 4 5	10 6 24 8 11	5 11 3 3 16	29 14 21 1 - 2	33 29 22 30 32	50 53 57 58 62	69 69 68 68 59	52 53 46 45 50	48 46 64 51 57	42 44 53 63 55	30 40 36 42 45	20 17 30 35 36	31 6 1 6 11	1 2 3 4 5	38 51 49 26 15	25 27 21 24	19 20 25 21 33	34 30 31 39 45	37 35 41 45 44	44 43 60 48 47	68 65 69 76 73	64 65 64 66 63	57 47 48	45 48 42 38 50	47 40 33 36 46	27 14 24 31 23
6		- 4 - 7 - 4 - 5 - 2	7 21 23 15 25	44 45 45 38 31	62 61 59 55 61	46 42 43 48 52	58 61 61 56 45	65 59 59 61 64	63 56 52 56 63	34 46 31 29 26	46 55 41 31 23	0 25 22 11 9	6 7 8 9 10	12 7 20 22 30	34 32 29 27 24	26 18 25 48 35	40 36 29 31 28	50 47 44 52 53	55 50 38 39 44	63 59 66 67 68	52 53 63 57 60	59 49 52 61 58	45 49 35 40 33	39 31 42 35 34	25 29 24 32 51
11		-3 -11 6 19 5	15 23 24 5 9	26 37 37 35 33	43 31 31 33 29	57 58 62 54 56	49 53 61 56 67	69 62 55 51 63	68 71 56 48 48	48 40 32 34 37	17 18 24 33 34	24 10 - 5 11 20	11 12 13 14 15	25 13 15 24 15	24 21 24 28 22	30 27 17 27 17	33 22 40 38 32	45 56 50 48 37	56 54 55 53 63	64 57 53 54 54	58 51 43 56 64	60 62 64 65 64	48 50 36 50 67	36 29 25 31 40	40 35 33 37 32
16 17 18 19 20	1	2 12 28 20 14	12 18 26 21 25	38 36 36 32 35	33 33 44 48 38	50 61 57 66 60	61 67 51 65 66	61 62 59 49 45	63 66 70 70 70	36 30 30 31 29	33 37 34 29 19	15 35 42 46 50	16 17 18 19 20	31 36 21 12 11	25 37 28 17 31	18 24 40 40 49	37 32 33 31 16	37 42 48 51 63	67 63 61 55 56	63 62 64 64 65	59 46 47 54 41	69 48 36 51 35	59 33 31 44 54	31 25 20 29 39	30 19 2 11 14
21	12 6 4	26 9 15 13 33	16 19 23 37 38	40 35 40 38 51	30 31 40 45 49	54 56 47 63 63	69 64 60 57 53	54 46 63 69 56	67 66 49 33 37	16 36 20 23 34	16 22 32 27 30	35 30 38 37 40	21 22 23 24 25		29 30 26 12 21	35 39 32 30 26	30 51 51 52 52	47 39 53 45 38	41 43 59 63 61	70 66 62 57 60	42 53 56 54 50	28 43 46 38 43	45 38 34 32 34	44 32 21 14 34	17 12 6 - 7 7
262728293031	18 - 1 - 9 - 3 0 -11	21 32 41	29 25 28 31 31 31	45 47 41 44 48	47 41 44 58 68 70	65 53 52 50 61	47 63 51 52 57 45	62 65 65 64 52 55	66 43 35 44 32	27 40 27 24 13 28	22 13 24 32 26	17 12 19 28 19 9	26	-20 - 6 - 4 7 10 - 6	12 1 12	19 12 22 28 33 37	43 29 38 55 47	36 37 49 45 46 33	49 44 51 67 69	70 65 60 58 59 68	44 60 46 64 46 42	56 40 34 35 41	41 47 45 35 36 33	38 27 20 21 12	22 22 8 15 33 22
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6 7 8 9 10	5 11 11 26 29	30 27 27 27 24 19	29 27 26 19 25	31 22 26 33 32	50 48 52 57 63	65 69 66 61 57	55 54 50 59 59	70 70 71 77 70	49 43 49 55 65	40 38 26 27 35	31 33 30 23 24	36 28 33 32 31	6 7 8 9 10	29 21 30 21 32	6 23 36 39 41	22 26 28 39 46	20 22 23 43 40	34 40 44 36 55	56 60 68 59 68	48 54 58 56 45	57 64 69 58 55	67 50 46 44 45	43 45 52 37 43	34 28 43 37 33	18 16 3 5 4
11. 12. 13. 14. 15.	27 17 13 18 3	20 12 19 16 21	14 1 0 1 20	46 41 58 55 51	64 56 60 59 50	47 48 55 52 58	60 62 69 68 67	65 65 65 63 64	62 63 61 64 60	35 44 46 36 38	36 30 27 19 37	28 37 34 26 26	11 12 13 14 15	30 34 31 31 31	42 32 32 29 18	49 40 35 30 33	35 34 40 42 42	46 50 38 41 53	66 68 64 65 49	42 46 49 61 68	61 60 48 59 59	40 38 52 58 60	58 44 46 37 32	23 18 28 33 28	15 12 4 - 5 4
16 17 18 19 20	3 20 32 25 24	$\begin{bmatrix} -3\\ -3\\ 5\\ -6 \end{bmatrix}$	i	61 63 59 55 41	50 60 58 54 43	56 52 53 57 68	58 47 49 65 70	65 48 50 44 57	48 61 45 53 31	35 35 31 22 34	52 58 48 30 25	20 5 27 7 22	16 17 18 19 20	18 14 12 20 34	3 15 33 28 31	38 38 33 41 33	36 54 41 40 37	56 40 45 61 61	53 53 56 60 50	68 69 69 69 67	64 69 67 62 56	55 56 62 51 46	37 43 42 40 32	19 28 43 40 29	15 29 31 29 33
21 22 23 24 25	21 25 28 33 33	- 1 7 34 31 16	15 26 21 18 29	44 33 39 47 45	51 56 50 52 64	68 63 57 61 64	69 68 58 58 54	59 64 65 54 49	39 41 26 37 47	32 22 28 28 28 20	33 29 24 42 40	13 -12 6	21	31 31 29 18 28	21 20 22 13 11		33 48 46 42 42	60 62 60 57 54	47 44 51 61 69	59 56 62 68 66	57 63 71 70 65	45 61 62 49 47	48 38 37 41 46	38 18 9 10 8	•
26. 27. 28. 29. 30.	24 18 21 25 31 32	30 34 34 27	25 17 27 50 37 33	48 54 56 56 52	59 50 55 44 52 45	65 59 61 53 47	60 68 71 69 72 62	60 44 46 46 54 57	59 49 46 55 50	33 36 53 55 48 45	56 34 20 18 12	25 22 12 35 35 35 39	26	20 17 10 23 17 12	7 21 23	37 54 35 30 26 24	40 31 33 43 37	45 47 60 54 50 41	62 63 53 49 67	61 62 68 68 61 57	55 49 44 68 58 68	53 45 41 53 62	36 25 29 27 39 38	18 10 8 28 22	24 18 9 25 31 13

Table 8.—Daily minimum temperatures (°F.), Wauseon, Ohio, 1883-1912—Continued.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
						18	99												19	01					
1 2 3 4 5	3 10 23 43 18	-8 6 16 16 10	19 29 35 32 26	19 21 15 23 21	63 58 55 51 52	66 57 55 66 71	48 56 60 61 64	56 70 60 70 66	71 64 67 51 58	20 38 36 47 40	33 31 32 32 29	38 31 31 24 11	1 2 3 4 5	- 7 -10 3 12	- 1 - 1 24 21 9	11 27 25 23 0	22 32 34 30 30	46 56 43 33 36	41 44 37 41 61	74 72 71 72 69	51 54 61 55 48	53 57 56 57 55	50 42 28 28 28	39 27 33 22 18	32 30 19 6 1
6	21 6 5 20 7	1 - 6 -17 -16	14 8 6 17 27	29 34 31 26 29	49 45 51 44 50	67 71 64 61 54	64 61 59 48 52	56 49 51 55 66	61 62 49 46	36 36 42 35 48	23 23 27 30 41	25 20 24 26 40	6 7 8 9 10	9 31 30 27 31	- 6 4 15 0	- 1 15 29 30 30	38 37 38 30 30	50 52 46 53 53	58 47 38 38 47	64 57 55 51 65	56 51 63 56 60	58 57 57 51 58	34 30 46 60 50	20 37 35 32 20	9 19 33 31 26
11	9 15 35 35 31	-10 -15 -17 - 1 16	36 29 25 23 32	40 46 45 52 34	53 49 54 42 46	51 65 66 68 60	61 59 65 65 64	60 68 54 56 53	50 55 39 34 33	59 55 55 63 51	39 29 29 41 44	51 33 22 20 11	11	31 26 7 26 27	- 5 14 - 3 - 9 -11	28 24 33 32 24	31 28 41 43 38	51 41 32 37 34	66 63 67 65 63	68 57 54 64 68	47 54 51 53 66	54 61 56 50 64	48 54 43 35 37	36 34 31 29 28	12 18 37 9 - 2
16 17 18 19 20	36 30 19 13 21	19 28 31 28 36	29 30 32 23 18	32 42 46 44 43	50 53 53 39 36	43 46 49 60 67	70 65 53 58 62	51 51 55 57 59	47 63 61 51 48	54 50 47 39 41	40 37 51 40 28	1 11 29 29 21	16	30 19 13 0 10	9 24 27 16 8	16 32 35 33 27	34 50 33 29 30	37 40 58 47 49	59 63 57 62 61	69 64 60 57	51 65 69 69 69	55 47 37 32 47	44 35 26 46 35	29 30 30 24 20	- 8 0 1 - 9 - 6
21	30 24 32 27 20	35 33 27 19 23	22 34 24 20 30	47 47 50 50 55	40 38 41 45 47	53 60 66 61 56	62 58 64 63 68	67 55 54 55 65	36 53 45 53 46	32 38 55 53 48	29 46 37 29 35	26 22 27 21 9	21	33 24 24 24 24 20	0 - 5 1 18	23 19 28 47 51	32 38 43 43 44	52 53 50 46 43	60 63 66 59 66	65 73 61 63 68	67 68 67 65 57	34 41 54 52 55	36 43 51 39 26	23 29 33 31 29	-11 7 30 28 32
26	18 4 4 - 7 - 1 -13	34 23 24	26 27 26 15 23 23	50 56 66 60 68	54 62 65 61 56 59	52 49 60 53 45	61 68 66 66 49 48	64 63 62 59 54 63	43 32 49 41 29	52 54 50 41 28 36	29 28 34 28 35	5 7 7 3 - 5 - 1	26 27 28 29 30	19 24 21 6 14 - 3	6 - 1 - 7	38 31 28 22 30 29	38 36 38 42 48	44 49 46 40 36 39	67 68 69 67 63	67 68 75 73 71 58	64 63 62 64 64 57	48 55 50 61 53	33 43 39 38 44 51	23 20 11 32 32	31 28 27 22 22
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6 7 8 9	27 36 24 22 29	29 34 38 14 18	22 16 2 17 30	.36 52 42 26 21	32 43 53 43 32	57 68 59 45 51	73 65 63 54 48	71 66 66 66 70	72 65 60 64 60	63 55 50 87 35	28 34 30 28 29	32 34 29 23 14	6 7 8 9 10	24 21 25 24 24	7 - 1 7 15	23 34 37 34 30	42 26 22 39 35	, 53 49 42 36 40	50 62 53 42 55	71 73 67 70 56	56 47 50 53 66	47 51 49 48 40	46 45 38 43 33	46 29 28 31 43	22 18 10 0 17
11	26 24 27 32 32	25 32 20 13 14	17 4 31 19 16	25 30 30 30 37	51 57 63 64	62 54 51 64 56	65 49 51 54 70	71 69 69 61 68	69 60 44 52 54	36 43 50 44 39	30 21 30 19 21	18 10 21 7 10	11	20 16 15 15 20	11 12 7 -6 10	51 50 37 27 35	38 29 32 23	40 37 49 37 31	56 61 65 65 69	49 57 58 67 63	54 44 54 59 54	52 45 39 32 36	45 50 45 35 35	40 60 52 53 44	26 21 11 0 23
16		$\begin{bmatrix} -\frac{3}{4} \\ 9 \\ 6 \\ 10 \end{bmatrix}$	1 - 4 17 33 22	44 49 54 41 41	57 51 52 47 38	53 55 51 51 48	71 69 63 67 61	66 62 68 70 69	50 43 35 52 59	47 25 35 41 35	9 28 48 54 55		16 17 18 19 20	12 10 27 8 , 13	18 9 - 2 0	25 11 9 13 22	30 36 37 40 37	41 47 51 58 61	60 48 51 60 57	55 63 63 66 63	52 44 50 67 64	39 45 53 54 55	35 35 45 44 33	42 43 45 32 29	20 19 29 22 35
21	27 30 24 19	34 28 26 1 - 6	1,6 26 34 24 24	48 49 44 47 39	40 41 49 55 53	52 63 63 60 60	59 51 62 67 66	69 66 64 66 72	49 42 52 42 65	49 58 56 51 47	35 32 28 35 33	20 37 39 29 19	21	25 22 20 18 24	21 18 25 33 31	26 33 29 32 27	46 61 33 29 43	56 57 65 60 60	47 42 42 41 51	59 54 57 57 61	61 51 44 45 47	57 54 59 54 53	35 39 55 56 49	50 37 30 26 29	36 30 27 9 8
26	12 5 3 - 2 7 - 4	2 0 16	30 26 25 29 30 25	39 36 40 46 52	51 60 60 59 62 65	66 70 66 59 40	59 48 49 60 59 56	66 67 62 61 60 53	69 57 50 60 <b>43</b>	51 39 34 52 60 55	31 27 30 29 21	17 19 22 7 15 24	26. 27. 28. 29. 30.	26 3 - 3 7 13 14	26 34 29	82 42 43 43 35 30	41 36 34 47 43	46 41 35 35 53 53	43 44 55 55 55 55	65 64 67 68 59 60	48 52 53 52 55 64	59 55 54 60 58	52 42 34 27 38 28	33 23 20 29 27	8 - 1 11 21 8 3

Table 8.—Daily minimum temperatures (° F.), Wauseon, Ohio, 1883-1912—Continued.

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Day.	Jan.	Feb.	Mar.	Apr.	Мау.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Day.	Jan.	Feb.	Mar.	Apr.	Мау.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
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1 2 3 4	9 6 32 25 23	37 31 28 20 20	20 23 24 33 35	38 39 38 19 20	27 30 37 25 38	53 54 47 50 56	69 68 72 69	47 57 56 66 57	58 50 57 58 57	62 58 57 62 45	40 37 36 47 33	11 4 3 25 19	1 2 3 4 5	36 18 6 2 19	- 7 - 7 - 7 - 7	24 14 31 21 19	38 33 37 40 29	26 36 49 57 58	43 57 41 54 61	64 64 65 70 64	52 46 52 62 62	57 61 51 53 49	61 49 43 49 47	20 14 32 29 30	14 27 13 13 15
6 7 8 9 10	$^{12}_{19}_{6}_{4}_{-2}$	20 21 22 19 28	32 37 35 31 33	27 39 47 42 36	43 43 37 41 45	58 60 56 59 46	54 54 60 69 71	62 45 51 60 55	39 54 56 60 69	49 52 44 41 37	23 17 26 32 32	20 24 27 20 21	6 7 8 9 10	14 13 7 2 - 4	- 3 - 6 0 24 0	22 24 26 24 18	26 29 21 27 41	52 44 44 33 43	62 58 45 46 55	60 64 61 56 57	63 58 54 56 63	46 45 48 49 53	45 35 40 42 47	40 34 32 25 20	23 26 26 24 23
11 12 13 14 15	$   \begin{array}{r}       6 \\       -9 \\       5 \\       13 \\       22   \end{array} $	33 32 28 22 21	38 40 30 33 35	39 45 43 44 42	49 55 48 52 49	50 45 47 53 45	69 65 54 53 46	54 47 51 47 47	46 63 66 68 64	39 38 35 35 48	36 31 30 31 29	11 17 1 - 1 7	11	12 24 8 3 - 3	- 9 14 -13 -16 -11	20 21 21 14 9	37 26 30 32 29	43 55 41 57 56	63 57 53 52 58	58 64 62 62 59	68 69 64 63 62	61 54 59 41 49	35 34 33 45 50	29 35 24 11 25	29 28 22 17 20
16 17 18 19 20	23 22 7 2 5	-11 - 6 - 5	38 47 46 54 46	40 31 32 38 36	43 51 57 58 58	47 45 56 53 59	47 51 60 56 60	62 51 50 54 53	63 45 38 36 41	51 37 33 40 45	44 21 13 15 10	6 2 9 19 29	16 17 18 19 20	11 14 27 27 27 21	- 8 11 4 11 25	26 29 50 31 29	27 28 30 26 37	56 47 46 43 40	66 64 68 69 68	55 66 68 73 62	55 51 54 61 54	56 62 61 64 49	39 37 59 53 38	34 29 25 23 26	18 18 32 30 31
21 22 23 24 25	28 16 12 16 16	12 8 23 15 11	31 26 33 29 32	30 33 27 40 42	56 64 60 56 55	47 57 54 54 49	51 56 57 58 61	49 63 67 65 73	43 49 49 35 37	33 44 31 23 31	16 29 34 24 16	26 19 19 32 12	21 22 23 24 25		80 31 28 29 29	28 33 35 40 31	50 27 30 34 41	36 36 37 34 48	66 63 54 54 54	58 51 61 51 48		51 45 47 37 41	31 31 37 35 31	27	32 31 20 17 19
26 27 28 29 30 31	25 36 35 37 18 19	15 33 26	. 23 . 27	32 31 39 47 59	57 68 58 56 49 46		66 52 57 68 66 52	64 63 59 61 58 58	43 50 35 37 42		15 18	2 5 5 6 - 1 8	26 27 28 29 30	- 4 - 7 - 1	19 17 27	45 40 49 46 40 36	44 49 49 54 39	51 41 51 55 54 47	62 49 49 45 50	66	61 60 66	37 42 52 56 53	29 36 25 23 21 34	36 23 14	21 32 30 29 24 22
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6 7 8 9	13 0 29 20 7	39 16 7	32 28 21	32 33 38 38 38	51 57 45	50 54 54	60 63 59 64 60	49 45 44	52 56 51	27 41 58	25 31	9 27 25 13 14	6 7 8 9 10	25 19 11 11 18	- 8   - 3 3	20 28 32 30 26	32 39 40	39 29 31 34 25	69 69 63	55 59 56	68 68 66	44 49 51 57 61	39 37 42 37 29	39 38 33	19 19 27 32
11 12 13 14 15	14 18 18 10	1 8	21 3   15 3   24	33 23 22	45 56 46	49 49 55	64 48 58	55 51	50 44 50	44 36 29	26 29 28	13 17 5 -10 - 6	11 12 13 14 15	28	12 26 9	19 20	34 42 49	54	40 47 57	56 7 62 7 62	55 51 50 55	62 66 49 43	24 39 38 38	25	26 42 43 24
16 17 18 19 20	- 16 - 2 - 3	- 1	7 24	29	1 46	45 48 60	68 63 68 56	57 58 58	7 54 5 56	36 48 41	28 33 32 43	12 6 18 16	20	30	8 25 30 37	23 16	30 34 43 47	63 61 54 42	56	53 3 56 7 6	66 65 66 67	54 59 68	55 46 41	37 3 37 3 38 1 32	11 12 2
21 22 23 24 25	1 = 1	2 19 1 19 1 2 2 19	9 26 2 35 7 25 4 33 2 38	23 29 36 51 48	5 6	64 52 2 49 62 62 67	61 52 50 49 48	50 41		1	31 25 3 32 3 27			19	31 32 39 39 31	14	i	61 62 63 55	52 1 48 3 49 3 57	2 6 8 6 9 5 7 4	i i	ı	1	3 30 7 28 5 26 1 28	
26. 27. 28. 29. 30.	-î	1 1 1 1 3 3 3 3 3 3	7 21 5 19 3 30	)   39	8 4 3 4 4 4	3 65 4 55 3 56 9 60 8 57	63 63	3 4 4 4 2 5	2 5 3 5 4 5 5 6 0 5	33 33 34 34 34 35 36 36 36 37 38 38 38 38 38 38 38 38 38 38 38 38 38	3 22 3 22 3 21 4 28 1 21 3	24 16 10 7 28	27 28 29	3	24 0 13 1 10 9	. 20	47 4 39 9 37 5 43 4 47	4: 4: 3: 5:	54 1 64 2 64 0 64	0 4 4 6 5 5 8 6 5 6 5 5	2 60 6 47 6 52 0 57	49 47 49 54 47	3	0 36 5 27 8 26 3 26	3 3 3 3 3

Table 8.—Daily minimum temperatures (° F.), Wauseon, Ohio, 1883-1912—Continued.

Day.	Jan.	Feb.	Mar.	Apr.	Мау.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Day.	Jan.	Feb.	Mar.	Apr.	Мау.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
-						190	97												19	909		1 1			
1 2 3 4 5	31 32 38 27 28	20 9 6 4 6	21 27 18 13 25	19 18 25 38 31	26 27 30 32 27	51 48 42 53 45	65 57 42 55 56	59 55 44 45 55	57 64 49 54 57	34 44 55 49 41	43 44 38 30 34	18 12 20 14 9	1 2 3 4 5	12 15 34 39 33	-10 17 13 17 44	27 29 30 21 15	25 31 32 28 35	34 31 35 31 39	59 56 62 63 62	60 55 56 49 52	57 63 62 63 59	41 37 55 58 48	34 33 41 37 42	49 48 40 37 41	23 32 36 37 40
6 7 8 9 10	37 54 33 16 13	- 3 6 11 19 24	15 22 28 19 24	24 31 36 33 27	41 44 35 36 39	44 39 50 43 52	63 62 62 67 60	59 65 59 61 55	51 56 59 51 54	39 51 37 35 40	36 30 31 29 29	21 30 37 42 23	6 7 8 9 10	6 4 8 26 34	27 23 25 24 15	30 29 28 31 28	54 42 29 27 18	49 43 39 49 45	50 59 52 52 52 59	55 54 51 53 60	58 57 57 64 64	40 44 45 59 57	38 37 39 41 49	39 32 40 31 44	22 20 1 0 8
11 12 13 14 15	26 28 29 31 20	6 4 17 19 15	18 36 31 29 27	28 30 29 24 20	27 33 41 60 62	51 56 56 51 56	66 55 53 55 61	61 68 53 51 55	52 55 49 50 60	36 34 33 30 31	23 18 23 18 17	22 20 14 28 28	11	15 -10 -11 19 19	12 25 25 21 21 18	28 26 29 27 23	22 30 42 23 27	35 35 50 55 56	51 51 61 59 47	68 68 63 62 62	53 61 61 62 69	55 52 55 61 65	41 30 30 30 28	56 50 45 50 40	17 26 33 28 24
16 17 18 19	26	28 26 26 30 17	33 37 25 32 27	27 31 21 31 25	37 39 49 50 34	47 53 58 60 61	72 71 56 58 65	65 65 54 51 63	60 66 64 64 66	47 46 33 25 33	17 18 31 25 36	20 14 23 18 20	16	12 16 0 13 25	10 9 17 34 29	23 10 15 35 30	34 47 49 51 35	52 41 40 42 46	46 60 44 41 47	62 54 62 47 49	63 59 57 60 61	47 45 49 45 50	35 30 39 27 29	38 31 30 32 41	13 11 6 4 7
21 22 23 24 25	- 3 - 6 9 7	$\begin{bmatrix} -\frac{5}{2} \\ 20 \\ 20 \\ 20 \end{bmatrix}$	31 52 50 38 35	21 33 35 27 39	28 35 46 47 51	62 62 65 63 58	57 68 59 65 68	54 42 51 59 51	54 41 41 48 41	26 29 36 22 35	44 27 25 27 23	28 24 30 22 26	21	33 43 54 43 31	26 23 33 24 17	23 20 19 32 28	39 39 28 26 41	53 45 43 51 49	61 67 70 64 64	58 61 60 53 50	49 43 49 55 62	62 62 58 40 40	47 44 35 30 26	40 35 23 24 23	15 12 23 15 22
26	16	14 17 15	50 62 49 46 37 27	32 27 33 46 38	52 37 31 41 49 42	63 45 52 59 54	66 47 51 58 53 55	43 55 57 59 64 57	30 36 49 52 44	26 39 30 25 32 32	29 28 29 23 23	23 44 25 24 30 22	26. 27. 28. 29. 30.	25 30 16 26 14 - 2	20 30 16	25 32 28 28 28 25 30	25 43 25 34 38	52 51 53 49 54 61	66 69 69 65 54	55 64 64 69 64 63	68 61 66 57 51 50	38 39 34 40 38	36 35 26 20 37 41	24 29 44 30 22	18 11 7 - 6 - 4
		1		<del>!</del>		19	08			•					·		•		18	910	•	<u>'</u>			
1 2 3 4 5	. 40	10 - 3 9 - 8 13	22 28 19 20 26	36 28 22 24 32	32 33 28 33 38	45 43 54 50 52	57 60 61 65 59	49 55 58 66 69	63 51 36 42 51	37 25 26 30 32	21 22 28 18 15	21 15 11 30 3	1 2 3 4 5	21 26 9 0 15	2 25 26 22 16	32 31 32 28 31	27 35 41 54 56	49 54 42 31 28	40 36 41 44 50	64 60 68 62 52	52 62 61 65 46	57 46 64 66 67	53 41 49 64 64	24 25	
6 7 8 9 10	11	19 17 - 2 0 9	32 34 31 22 24	31 45 39 28 34	43 44 42 38 38	54 62 64 64 47	68 71 47 47 50	54 55 55 51 58	57 43 40 45 52	39 45 38 32 35	30 28 31 36 31	20 14 2 8 - 2	6 7 8 9 10	11 5 10 11 1	6 7 24 22 16	27 26 21	42 29 29 36 40	29 34 49 41 41	40 45 41 51 48	63 67 55 68 68	46 57 53 63 59	68 53 64 52 40	44 34 33 43 33	28 24 28 35 29	15 19 14 3 8
11	30 17 12	21 31 31 32 26	35 34 34 28 36	38 26 37 37 44	48 57 55 50 47	49 46 56 65 49	61 72 69 66 51	53 71 67 60 66	54 57 55 55 53	33 26 25 44 54	25 20 16 16 16	29 21 22 19 34	11 12 13 14 15	14 27 28 21 21	12 20 8 15 25	21 27 31 22 15	41 34 26 32 47	45 32 33 29 28	55 42 45 52 54	53 65 57 50 65	54 49 50 54 65	42 55 53 50 41	41 44 39 48 51	27 30 34 30 30	12
16 17 18 19 20	13 14 22	17 10 3 21 3	27	46	50 56 60 53 52	39 42 57 69 65	54 63 69 58 54	66 70 55 54 44	51 45 46 55 63	46 45 49 52 45	24 16 30 29 30	32 33 31 27 26	16 17 18 19 20	23 28 25 15 33	j	34 48	52 38 39 33 38	39 47 51 46 56	60	69 63 55 45 48	64 63 69 53 51	58	53 52 51 54 51	31 27 26 23 16	
21 22 23 24 25	. 35 . 31 . 13 . 8 . 22	18 1 22 - 6 30	26 34 41 33 23	26 36 48 55 61	58 58 52 53 62	62 67 72 69 56	59 62 65 65 62	43 54 45 50 47	58 58 57 65 53	46 35 43 53 36	19 30 45 49 47	21 17 12 35 27	21 22 23 24 25	26 17 18 23 11	23 18 6 - 1 3	23 45 35 43 43	33 37 35 30 34	57 64 60 50 43	62 58 58 67 53	60 65 65 70 66	56 63 63 69 73	51 45 47 55 53			6 9 24 16 1
26	. 26 11 16 5	17 11 8 21		49 44 40 37 34	1	1	62 62 58 59 61 66	52 50 48 51 62 63	1	33 43 38 30 27 23	41 32 28 25 41	29 23 14 17 27 16		27	18 34 30	. 47 . 57	33 33 41 43 58	40 38 40 55 40 38	53 64 58 58 58	57 60 58 61 62 53	44 42 45 56 61 66	53 58 43 40 42	36 36 29 22 27	23 31 32 29 26	20 18 29 32 12 12

Table 8.—Daily minimum temperatures (°F.), Wauseon, Ohio, 1883-1912—Concluded.

Day.	Jan.	Feb.	Mar.	Apr.	Мау.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Day.	Jan,	Feb.	Mar.	Apr.	Мау.	June.	J <b>ul</b> y.	Aug.	Sept.	Oct.	Nov.	Dec.
						19	11				<u>'</u>					·			19	12					
1 2 3 4 5	$\begin{array}{cccccccccccccccccccccccccccccccccccc$														5 0 -14 -11 - 2	6 2 10 7 7	31 32 26 28 37	39 40 49 46 47	53 64 54 58 44	52 58 66 62 68	48 52 44 48 43	72 73 70 64 63	37 37 42 47 41	30 27 21 31 40	34 31 29 35 35
6. 7. 8. 9.	20	18 7 19 12 14	25 25 21 29 33	39 27 28 24 24	34 40 42 58 56	61 60 56 57 66	73 63 66 69 73	63 66 69 56 60	54 56 65 56	48 42 36 36 54	41 41 30 30 45	21 30 31 47 47	6 7 8 9 10	- 5 - 9 - 2 - 4 - 3	13 - 1 - 7 -18	9 15 27 12 13	50 40 28 32 33	55 52 53 42 38	57 41 36 47 39	71 67 68 69 65	52 57 62 66 62	68 67 52 58 61	47 40 32 49 54	48 34 30 38 40	27 21 14 12 18
11 12 13 14 15	31 32 32	7 29 34 36 36	31 31 22 22 7	34 40 46 43 39	63 51 36 37 46	68 55 56 48 48	69 65 54 52 51	68 61 63 67 69	58 59 51 42 49	44 39 42 41 42	53 16 12 20 23	39 31 27 24 32	11 12 13 14	- 3 - 2 -19 6 - 1	- 2 - 5 - 12 10 26	16 28 14 23 9	39 41 40 40 45	54 55 32 38 36	46 64 50 53 64	65 58 70 68 68	62 59 68 67 55	65 45 47 62 65	58 41 36 33 36	48 51 37 29 25	14 7 10 25 31
16. 17. 18. 19.	10	30 38 29 19 11	7 14 27 26 34	30 27 31 51 41	62 60 64 64 67	58 59 56 54 59	. 58 47 60 62	63 66 60 51 47	53 51 60 58 45	45 50 38 38 45	12 26 26 27 25	32 29 24 21 23	16	- 4 10 22 5 1	17 26 22 31 23	3 20 31 35 19	39 33 34 30 31	46 44 45 45 46	62 61 51 53 50	57 61 61 47 54	53 53 66 69 66	53 51 61 47 48	28 35 53 38 29	21 27 21 35 35	35 34 28 25 23
21 22 23 24 25	15 12	10 20 17 29 30	26 31 22 17 21	41 37 31 30 32	65 65 62 50 51	54 56 63 67 70	58 47 50 59 49	50 52 59 55 56	54 53 46 51 62	46 37 34 30 33	28 22 30 27 24	34 35 30 27 29	21 22 23 24 25	8 24 22 13 15	16 10 11 29 29	18 22	40 48 29 37 29	58 52 63 66 48	57 47 48 53 53	65 60 57 70 65	63 62 54 50 67	44	35 48 41 31 30	34 29 32 29 29	14 16 11 21 25
26. 27. 28. 29. 30.	38 29 33	37 25 20	42 26 25 28 28 26	31 44 53 56 58	61 58 62 63 57 57	67 73 56 53 53	46 49 51 65 57 59	49 60 64 47 45 48	54 51 46 58 44	41 29 24 28 31 41	31 32 32 24 19	31 19 13 13 30 20	26	1 22 17	25 16 17 10	0.0	46 43 36 39 36	51 62 65 56 50 45	57 63 59 63 65	62 55 62 61 54 54	71 51 51 56 50 56	33 37 42 32	33 32 39 48 34 32	30 25 18 28 20	24 26 19 30 33 30

95627—15——6

Table 9.—Daily precipitation (inches), Wauseon, Ohio, 1883-1912 (including rain and melted snow).

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oet.	Nov.	Dec.	Day.	Jan.	Feb.	Mar.	Apr.	Мау.	June	July.	Aug.	Sept.	Oct.	Nov.	Dec.
						18	88											•	18	885					
1 2 3 4 5	0.06	0. 26 2. 50 . 22	T. 0.01	0.02	T. 0.09 .16 .05	0.01	0.01 .10	т. т. т.	0.01	0.97	0.10	0.01 T.	1 2 3 4 5	0.02	0.01 .01 .01 .05	0.01	0. 28 . 76	0.25 .02 .06 .75	0. 64 1. 22 . 15	т.	0.60 1.11 .05 .41	T. 0.39 .04	0. 63 . 11 . 19	0.50 .01 .28 .95	0.08 .01 .20 .08
6 7 8 9 10	.13	.11	.17 .01	.10	.01 T. .04 .30	.81 	T. .48 T.		.03 T.	.01 T.	.29  .44 .41	.28	6 7 8 9 10	.39 .01	.01 .07 .66 .03	.04	.08	1.09 .06 T. .13	22	.01	.83 .03 .15	1.16 .11 .05	.02 .14 .04	. 24 . 16	.04 .02 .51 .90
11	.16	.06 .86 .01	.01	.10 .20 .11	T. 1.07	.53 .39 .01	.10 .19 1.90	0.01 .01		.34 .39 T,	.01	.05	11 12 13 14 15	.57 .14	.10	.01 .11 .01	.18 .01 T. .01	т.	T. .01 .26	.05	.06	.01	.10 .81 .14	.01 .44 .03 .01	32 .06
16 17 18 19 20	.02 .39 T. .34	.09	.10 1.13	.12	.15 .16 .20	T87 .23	T. T.	.60	1. 10 T.	.35	.20	.07	16 17 18 19 20	. 44	.03 .03 .03 .01	.02 .01	. 54 . 33	T.	.72		T.		.11	.01 .55 .04 .01	02
21	.01 T.	.02 .41 .03	.01	.10	.54	.24 1,27	1.96 .63 .70	.34	.64	.01 .01 .55	. 93 . 02 T.	.15	21 22 23 24 25	.01 .38 .08 .02	.01 .02 .02	.01	.11	.30 .57 .68	.43	.09	.19 .58 .10 .10		т.	.01 .08 .07	
26	.16 .01 .06 T.	т.	.04	.13 .02 T.	1. 13 .01 .53 .33 .59 .01	.03 .02 .11 .03		. 69	.60	.03 .01 .20 .78	.41	.38 .38 .01	26	. 25 . 05 . 01 T.	.03	.31	.27	.72	.17	1.41 	.01		.01 .14 T.	.03	.03 .01 .03
Sums	1.72	5. 11	1, 73	1. 63	5. 97	4.73	6. 44	1.67	2.96	4.37	2.88	2. 41	Sums	3. 22	1.15	.62	3, 71	5, 61	3.83	3, 03	4.36	2.14	3.03	2.73	2.57
						18	84												10	886					
1 2 3 4 5	0.10 .40	0. 22 1. 27		0.08	0.69	0.12	0.05 T. .12 .03	0.10 T. .03		0.10 T.	0.04 T. .63	0.06	1 2 3 4 5	0.33 .29 .19 .08	0.01		0.08	0.03  .27 .04	0.15		1.06			0.01	0.05
6 7 8 9 10		.32 .03 .03 .23	.01 .18 .02	.11 .26 .11 .01	.41 .60	.10	.01	.01 .01	T. 0.32	. 69		.80 .04 T.	6 7 8 9 10	.12	.02	.08	2. 15 .10	.34	.02	0.01	.04	0. 04 .05		.17 .04 .18 .05	
11	.02	.34 .77 .18	.25 .01	T. .01	.03		T.		.04			.05 .24 .06 .01 .47	11	.01	.05 T. .06 .06		.02 .12  T.	.02 .23 .19 .48	.07 .08 T.	T. .02	.01	.17 .01 .01 .02	0.57		60 46 18 01
16 17 18 19 20		.35 .06 .80 .01	.01 .07 .37 .03	.11	.32	.70 T.			.02	. 40	.02		16 17 18 19 20			1	.01		Į.	T.	ì		-	.03	28 02 05 05
21	.14		1.05			T. T. .05	.13	.04	.01 .62	1.01 .03	.18		23 24 25	.02	.01 .01 .31	.05			.15		T.	.04		1.08	67
26	.04	T. .11 T.	.63	.01			.43	. 91	.74	.29	.05	.01 .30 .32 .07 .14	27	.27 .01 .02 .05 .05	T.	.01		.04		.02 T.	.06 1,28	.91	.50	.06	42
Sums	1, 93	5. 02	2. 78	1. 42	3. 95	2. 79	4. 20	1.12	1.85	3. 01	1.46	3, 38	Sums	2. 78	. 84	1.56	3, 19	2.69	2.01	.31	4.86	4. 47	1.94	2.66	3.07

Table 9.—Daily precipitation (inches), Wauseon, Ohio, 1883-1912 (including rain and melted snow)—Continued.

	1	ı	ı	i	1	r	i	i	·	<del></del>			i		1			· · · · · · · · · · · · · · · · · · ·	<del></del>		<del></del>	1 1			
Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
						1887	' 												1889						
1 2 3		0. 16 \. 30			0.11 .38	0.37 .62 .01			0.02				1 2 3		0.03	0.60 .11	0.04 .14 .07			0.24	0.01 .01				0.07
5	T. .05	.10	0.61	0.06	. 21	. 54	0.67 .04	T. T.	.11 .04			. 34	<b>4</b> 5		.02						. 29	····			.21
6 7 8	.02	. 56 1. 57	.26		.12	.38				.03		.01	6 7 8		T. .01	 7.	. 03							Т. 15	. 10
9	.25	1.15						Т.	.64																
11 12 13	.02	.99	T. .03 .03					0.08	24	.02		. 15	11 12 13	.04				0.02						 .12 .19	.01
15	.05	.20 .07		. 05 . 17				.14			T.	. 01	14 15		T.			.97 T.	.04	.69	. 56	.04		. 05 . 09	.79
16. 17. 18.	.26	 .78 .31	 		.08	oi		27	. 05			T.	16 17 18		.41 .10 .26	T.	.01		1.08 .02 .20	T. 1.61	.02		.04	.02	.04 .14 .01
20		.02				.02 1.22		29		.03	.08 .13	. 02 . 02	19				. 15 . 01	.04	.26	.49				.12	. 29
21 22 23 24	.00	.06	.12 .04	.01 .29 .12	.08	.21 .04 .05	.09 .91		.01 .57	.05 .05 .41		.04 .01 .02	21 22 23	.06	T.				T.		.01			.01	. 05
25	···ii	.03	.07	.14	. 59						.40	.01	24 25		T.		. 07			<b> </b> -		ii	. 14		.02
26. 27. 28. 29.	. 15	.17 .04 .03	.23	.14 .08 .34					.05 .30 .01			.02	26 27 28		. 29		T. .02	.33	T. .45	.63		Т.	.01 .02	.20 1.51 .25	.01
29 30 <b>3</b> 1					. 55				.27	Т.			29 30 31.	.05		.20	Т.	3.02 3.02 .18	. 01	. 25			.11 .16	. 04	. 05
Sums		7. 19	1.49	1. 52	3.50	3.55	2.87	1.52	1.70	1.97	3.78		Sums	1.08		2.96	1.90	8. 22		4. 82	1.54	0.79	0.93	3.67	2. 85
		<u></u>				18	88	•		· · · · · · · · ·	·	·····				•		•	18	90	·				
1 2	0.18	ļ	0.33	0.02	0.01	0.08	ļ				0. 21		1	1.56 .26	0.01	0.01	ļ	0.11	ļ	0.18	T.	ļ	0.03	0.26	0.09
3	.11	0.51	ļ		.02 .06 .04		0.09	. 13			.01	T.	2 3 4		.12	T.	1.17 .57	16		.02	T. 0.03	1.40	.01	.01	.30 T.
6	- 00	.04				Т.		. 03		.19	.01	0. 19	6 6	.49	. 57	T.	т.	.03			T.	. 03	. 19		
8 9. 10	.05	.03			T. 1.35 .04	.34	.05		T.		2.19	.39 T.	9	T.	.01		.82 .50 T.	T. 1.01 1.18	.09	.08		.02			
11 12	1		.12		Т.	.02				.64			11	.25		. 59		02		.02	T.	07	.27		
13. 14. 15.		.18	.01	T.	.03	.24 .12			0.08		.08	.01	13 14 15	7. T.	.66	.01	T. .20	.12	.02	. 16			1.38	.04	
16. 17.	.08			.03		т.		.28	. 46	.01		.50	16 17	.11		T.					.02	. 06	.22	.01	.17
17. 18. 19. 20.	.12	.38	.08	.07	.31		.08	.17	.02	.13	.38	.03	18 19	.03		.13		.33	1		.]	.07	.01	T.	
		1	.66	<b></b>		.21	T.	.03			<b> </b>		21	.01 T.	.01	. 18		. 18	2.02		2. 54				. 09
22 23 24 25	т.	.23	.03		05	.07	.02		.02	.02			23 24	.11	.05	.01	. 48	.10					.51		T.
26	.03	. 03	.50			ļ	.01		.09	.07	l .		26	.01	.01	<b> </b>	1.10		т.	. 01	1	.28	)	1	T. .04
30		.02	40			.31			.09	т.	Т.	.01	28 29	T.		. 91	03	T.	1				.24	.06	1.
Sums	.01	1 00	ļ	·	.07	2 50	.11	.15	.06		ļ		1 01	.01		· ·····	· · · · · ·	. 03		•	3.48	•	.02		
	2.40	1.98	3.04	2.27	0.30	0.02	U. 80	1.95	0.04	1.93	0.00	1.00	Jums	2.42	0.40	3. 20			1	3. 20	1	5.23	33		***

Table 9.—Daily precipitation (inches), Wauseon, Ohio, 1883-1912 (including rain and melted snow)—Continued.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Day.	Jan.	Feb.	Mar.	Apr.	Мау.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
		<del></del>	•	•	<u>'                                      </u>	18	91		<del>'</del>		<u> </u>				<del></del>		<del></del>	<u> </u>	18	98	<u></u>				
1	1.63 .10	0.09 .02 .20		0.03 .02 .03 .11 T.	0.02 .10 T.	0.40 .13 .10	0.37 .37	т.	T.	0.41		0.02	1 2 3 4 5	0.72 .07 .05 .04	0.38 .38 .15	0.09 T.	T. 0.38 T.	0.35	0.91 .40 .26 .17	0.01 1.64 .07 T.		Т.	1.74 .04	0. 20 . 01	0.04 .15 .49
6 7 8 9 10	T. T.	.02 .10 T.	.04 .05 T.	.13 1.02 .47	.06	.44 .02 T.	T. .86	т.	.02	.16	T. .09 .47 .78	.28	6 7 8 9 10	.02 .01 .04	1, 10 .02 .60 .37	.02 1.49 .15	.10 .09 .28		1. 19	.93 .01 T.			.07 T.		
11	.16 .01 .01	.03	1	.18	.28	.03	01	0.04	.05 T.	. 25 T.	.05 .02 T. .42	.23	11	.44 .04 .01 T.	1.07 .05	.47 .14 T.	.06 .29 .17 .36 .22	.01 .35 .15	T.	.04 .97 .97	0.23	0. 57 . 08 . 03	. 04 . 67 <b>T</b> .	 .14 .34 	. 22 23 2. 04
16		1.07 .64 .01 .09 1.35	 .05 .02 .54	1.03	.02	.09 .92 .19 1.02 .34	.01 .32 T.	1.58 .27	T.	.02 .16 .63 .03	.46 .16 .01	.03 T.	16	T. .07	. 28 . 04 T.	.12	. 24 T. .37 1.19	.01	.05		.07	.07	.38	.02 T.	.24 .14 .17 .06
21	.03	.07  .53 .21	.17	.55	.46 .10 .07 T.	.20	.04 .01	.06 T. .19 .64		.05	.34 .93 .45 .01	.14 .21 .26 .02	21	.01 .01 .01 .34 .02	.18 .01 .12	.28 .49 .08 .39 .07	.05 .03 T.	. 24	.03 .02 	.10	.07	T. .11 .54 T.	T.	.55 .01 .04 T.	
26	.18 .06 .02 .22	.02	.01 .31 .02 .73 1,50	. 29	.02	.05	.29	.04 .01 .41	.13	T.	.01	.01 T. .15	26	.06 .02 .26 .01 .21	. 26	.02	.46 .11 T. .40 .89	.06	.01	.03	.01 T.	.64	.31 T. .05 T.	T. 1.93 .13 .36 .15	.01 30 04 .01
Sums	2, 56	4.58	4, 45	4.39	1.49	4. 21	2, 36	3,43	.86	1.85	5.02	1.91	Sums	2. 47	5.34	3.97	6.06	2.32	3,09	5.06	. 49	2.06	3.31	3, 88	4.69
						18	92	,									,		18	94					
1 2 3 4 5	0. 12 . 15 . 17	0.05 .34 T. T. .01	0.67 .25 .24	T. 0.35 .69 .92 .01	0.38 2.27 .21 .20 .29	1.11 .75 .14 .08 .44	0. 26 1. 59	0.55 .03 .05 .15 .02	0.10	0, 16 T.	0. 87 . 48 T. . 11	0.05	1 2 3 4 5	0. 47 . 66	.01	0, 01	0.10 .10 .13	0. 19 . 01 . 15 . 09 . 70	T. 0.05	0. 15 . 37	0, 20	0.01 .12 1.08	0.03 .50 .03 .25	0.33	0.21
6	.03 .05	.46 .02 .02 .25	.02 .62 .20 .05	 .20 T.	2.03 T. 1.35	.88 1.47 .02		т. т.	.08 .07 .07 .18	T. .07	.02 .06 .07 .16	.66 .21 .06	6 7 8 9 10	т.	.01 .04 2.10 .15	.71	.02 .04 .02 1.35	.17		Ť,	т.	.03 .55 .29 .64	.07	.02 .30 .11 .25 T.	
11	.19 .03 .19 .09	T. .79 .01	T. .13 T.	1.44	.08 .01 .47 .10	Т.	. 25	.03	.46 2.59 .16	.03	.02	.83	11	T. T. .29	1.04	.02	.04	.12 .05 .10	T. .01	.02	T.	 .37 .25 T.	.01 .28 .18	.12 .09 .03	.14
16	. 23	.13	.04	T. .07 	1. 08 . 27 . 01	.17 .86 .26 .16	••••	.10			2. 05 . 03 . 03	T. .03 T.	16 17 18 19 20	1	T32 .45 .01 .01	.06	.59 .47 .11	!	• • • • • • •	T.			.06	.01 .01 T.	
21	.01	.45	1.47 T.	.53 .01 T.	.04 .06 .05 .46	.11 .11 .56 .01	.32	1.37 .03	. 17		.01 T.	.01	22 23 24 25	.10		.07 .43 T.		.33 .42 .10			.06	.17	.11	.14	14 01
26	.01	.02	.57		.63 .02 .30 .10 .01	.13 .88 T. .04 .46	.01 .42 T. .02	. 05	T.	.03	.05	T. .01	26	.15		.03 .22 .26	.15 .24	. 23 T. . 02 . 05	1.98 .02	ì		Т.	. 15 . 20 . 41 . 02	T. .25	.02 .05 .01
Sums	1, 42	3, 56	5, 54	5. 17	11. 40	8, 65	2, 95	2.38	4.61	. 37	4.38	2. 10	Sums	2. 27	4.48	3. 17	3.96	4.11	2.33	0.72	0. 87	3,74	2, 42	1.80	2.17

Table 9.—Daily precipitation (inches), Wauseon, Ohio, 1883-1912 (including rain and melted snow)—Continued.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Day.	Jan.	Feb.	Mar.	Apr.	Мау.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
						1	895													1897					
1 2 3 4 5		T. 0.02 .04	0.49	0.21 .12  T.	0. 08 . 02 . 08	0.02 .19 .03		T.	0. 25	T.			1	0. 28 . 24 . 35 . 34 . 02	T.	0. 14 . 47 . 31 . 12 . 36	0.86	0. 63 27 . 01 . 02	T. 0.17 .12	T. 0.43	0. 12 T. .17	0.33	T.	0. 61 . 63 	T. 0.01 T. .20
6 7 8 9 10.	.01 T.	.12 .07 .02 .01	.09	T85 .13	.48 .58 .22			0.67		0. 10 .01 T.	0, 03 .31 .70 .95	.01	6 7 8 9 10	.01	.19		.01 .02 .41 .01	.57	.22	98	.18 .41 .03		T, 0.04	.07 .18 1.13	.02 .01 .01 .21
11 12 13 14 15	.36	T. T. .03	.04 T.	. 25 . 12 . 13	.17 .31 .21	.01 01 T.	0.05	.77		. 25 . 75 	T.	.23	11 12 13 14 15	.02 .02 T.	.03	.04	.31 T. .97 .03	.05 .73 T.	. 11	.11 .01 .37 T.	.08 .27		.16	.20 .02 .63 .41	.47 .03 .16 T.
16. 17. 18. 19.	.16	.01 T.	.16		.04	.07	T. .11 .01		.31	T.	.04	.21 .31 1.25 .51	16 17 18 19 20	.09 1.02 .16	.37	.11 ,03 .60	.01	24	.12	T08	.01 .01 T.	.43	.03 T.	.35	.46
21 22 23 24 25	.01 T.	.12 T.	T. . 15	.25 T. .04	т.	.18	.08	.51	T.		.05 .16 .32 2.13	.55 .44 .44 .09	21 22 23 24 25	. 15	.01 .08 .01	.10 .51 .20 T.	.69 .07 1.29				T. .30 .03		T.	.01	.02 T. .04
26 27 28 29 30 31		. 25 . 07	.03		.07 T.	T.	.22 .20 T.	.05 .48 .32 .02	.11 .02 .04	.02 T.	.45	. 28	26	.10 .04 T.	.05	.08	T.	.04	.01	.34	. 27		.01	.48 T.	T.
Sums	2.27	0.76	1.62	2.10	2.75	0.64	0.71	2.82	1.18	1.19	6.30	6.72	Sums	3.76	1.35	6.66	5.69	3.90	3.33	3.67	1.88	0.76	0.77	5.20	1.88
						18	96											,	18	398				,	
12 34 5	0.05		0.14	0.04 .03 T.	0.07	т.	0.64 .35	0.02 T.			0. 22 . 36	0.01 T.	1 2 3 4 5		0.03	0.02	T. 0. 12 T. T.	0.10	т.		0.80		T. 0.09 .01	0.53	1.12
6 7 8 9 10		 18 T.	.42 .25 .15 .11	76		0.28 .14 1.25 .07	.44	.61 .03 	.01	0.46	.11 .02 T. .52	. 23 . 12	6 7 8 9	0.05  .10 .05	.21 .20 .03	.03	.04 T.	.43	0.10 T.		.24	.62	T. T.	T. .32 1.22 .70	T. T.
11 12 13 14 15	т.	.18 .55 .02 .40	.07	.03	.09	.21 .17	.40 .50 2.68	.47 .06 .03 T.		.02	.23	.02	11	.01 .66 .02 .33	.33 T. .20 .37	.17 1.00 1.56		T. .25 .09 .15	.08 1.45 1.37		т.	.05	1.07 .03 .02	.08	.08
15. 17. 18. 19. 20.	.43	 .15 .06 .01	T. .07 .64	T. 3.04	.06 .56 .29 .12	05 23	•••••		.24	.03 .01 .20		.09	16	.01 .07 1.16	T. .32 .05 .44	.01 .12 2.48	.14 .75 .01	. 23	.02	0.71 .72 .86 .10	.22	.12	.09 .61 .02 T.	.06	
21 22 23 24 25	.86	T.	.02 T.	.02 .16 .42	.04	.02	.88	1.85 .02	.02		.03 .08 .17	.02 .40 T.	25		.09	1.06	.39 .30 .04 .22	.05		.01	.46	1.11	.36	T. T. .01	.10
26. 27. 28. 29. 30.	.23	.01	. 21 . 55 . 07	1.30 .69 .01	.04 .05				. 21 . 10 2. 03 . 21	.07 T. .41	.01 .01 T.	•••••	27	T. T. 02	•••••	.69 .32		.13	.07	.60	.09	.40	.02 .08 .03	.10 .07	.01
8ums	2.20	2.24	2.80	6.65	3,44	4.12	11.01	4. 24	4.58	1.20	2.25	1.84	Sums		2.75	8.08	2.03	3.76	3.57	4.91	2.24	3.22	3.42	3.39	3.28

TABLE 9.—Daily precipitation (inches), Wauseon, Ohio, 1885-1912 (including rain and melted snow)—Continued.

Day.	Jan.	Feb.	Mar.	Apr.	Мау.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Day.	Jan.	Feb.	Mar.	Apr.	Мау.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
				7.0.T20.0.0.		18	09				,					,			19	01					
2	0.01 1.54 .01	0.21 .01	0. 04 .12 .23 .82	0. 01 T.	. 0. 13 . 38 . 43	0.07 .22 .01	0.90	T. 0.03 .05 T.	0.37 .07 .06	т.	T. 0, 10 1, 03 , 12	0.01 .02 .08 .24 T.	1 2 3 4 5		0.02 .55 .16	0.01 .20 .04	0.28 .04	0.03 T.	0.02	0.02 T. 1.40 .52	0.02	0.03	0.02 T. T. T. T.	0.31 T.	0.04 T.
6 7 8 9	.13	T. T.	.02	3 T.	.26 .12	.01	.05		.12	0.04 T.	. 13	.02 .02 .01	6 7 8 9 10	.04 .19 .40	.08 .18 T.	T. .25 .50 .92	.65	.02 .02 .56 .16	.03	T. .01	T.	T. .49	.02	.03	57 .52 .03
11 12 13 14 15	T. .46 1.38	T.	.09	.07 T.	.50 .09 .05 .03 T.	T.	.60 T. 1.45	.02	.15	.04	.57	1. 18 .20 .03 .56 .03	11 12 13 14 15	.37 T.	T.	.05 T. .65 .13 .07	.04	.02	.03 .21 T. .10	. 10		.03	2. 14 . 17 . 01	.76 .02 .04 T.	2.84 1.10
16 17 18 19 20	.01 T.	T. .04 .02 .01	1.25 .06	T.	.52	.03	.02	T.	1. 10 T.	.77 .02 .03	T.	.25	16. 17. 18. 19. 20.	.03 .11 .10	.07 .03 T.	.17	.33	.37 .06 .01	T. T. .03 1.76	.01	.16 .55 .35 .17	.02	.28 T.	T.	T. T.
22 23 24 25	.02	. 31 .02 .01 .02 2.10	. 99 T.	29	.02	. 15	T.	T.	.05 .18 .35 .11	T.	.06	.27 .03 .11	22. 23. 24. 25. 26.		T. T. T. .16	T02 .18 T01	.25 .26 .05 .10 .02	.51 .06 .15 .01		.05	.17 .30 .02			. 19 . 17 . 04 . 03	01 18 .42
27 28 29 30	T. T.	. 44	. 26 T.	.01	1.23	.42	.27	.01	. 02	.77 .70 .07	.03	.01 T.	27 28 29 30 31	.03 T. .02	.01	oi T.		.35 .95 .05 T.	T.	T. .01	. 12	.02	T.		Ť.
Sums	3.90	4.52	5. 47	1. 19	4.53	1.11	4.52	.84	2.70	2.50	2. 17	3.36	Sums	2. 10	1, 38	3. 57	2.99	3. 67	5. 15	<u> </u>	1.93	1.95	2.88	1.61	5.73
		1	1	1		19	900 	ı	1	1	7	ı			<del></del>	1	T	<del></del>	11	902	1	1	<del></del>	<del></del>	· 
1 2 3 4 5		T. 1. 16 T.	.24	0.21 .21 .02	0.04 .01 .03	0.65	0. 16 . 18		0.03		0. 16	0.06	1 2 3 4 5	0.04	0.20 T. .05	0.18	T.	0. 71 .87 .09	. 24	0, 73		0.21 T.	0.07 .11 .50	0.01 T. .59	0.50
6 7 8 9 10	.21	. 10	.46		.01	.03 .32 .01	T. 2.36 .07 .11			0.27	.08	.20 .01 T.	6 7 8 9 10	т.	.08 .01 T. T.	48	0.52 T. T.	.43 	. 64	T. .01 .06		.84	.01	T.	. 18 . 11 . 01 
11 12 13 14	. 06	. 26 . 48 T. . 07	.01 T.		Т.	.17		T. .69	.09		48 03 . T08	.01 T.	11 12 13 14 15		T. .01	.90 .45	T.	T.	. 24 .09 1.37 .05		06 T.	1. 41 1. 41 . 04	.06 .26 .01	. 15	T. 42
16	.01	1	.03 .02 .09 .22 .01	.91 .06 T.	12		ļ	.72 .60	. 16		1.21 .62 .32		20	.05	1	T.	T.	T. .30 .37	.38	. 40	.01		.93 T.		l m
21 22 23 24 25	.03		T.				1	.18	T. T.	.34	. 39	.09 .01 .01	24 25	. 01 T.	.05		.08	. 44 .20 1.75 .70	.14	. 02		. 11 2, 16 1, 08	T.	01	T. 16 02
26	T. .01	1. 66	.03		1,09	Т.	.22			.16	.04		26	. 02	T. 39	63	T. . 40		30 1.48 .81	1		47	.04	.35	T. 24 .03
Sums	1.50	5. 75	2.17	4.04	4. 12	3.01	5.71	2.97	1.61	3.09	4. 48	.93	Sums	.71	1.18	4.96	1.30	6. 45	7. 73	6.24	.86	7. 93	2.07	2.37	3.05

Table 9.—Daily precipitation (inches), Wauseon, Ohio, 1883-1912 (including rain and melted snow)—Continued.

Day.	Jan.	Feb.	Mor	Apr.	May.	Turno	July.	A 110	Sept.	Oct	Nov.	Dec	Day.	Jan.	Feb.	Mar	Apr.	May.	June	July.	Aug.	Sept	Oct.	Nov.	Dec.
		1.00.	mar.	Apr.	may.	l	08	, Tug.	Бери		1101.	1200.			1 000			1203.	<u> </u>	05	1108.		"		
,		T			T	<u> </u>	-  -				1	Ī.,				100	0.00	<u> </u>	1	· · · ·	ſ	0.02	0.50	m	0.00
3	.03	0.02 .07 .73	0.02	1.10	.03	T. 0.50	0.40	T. T.	0.02	0.31 T.			1 2 3	0.01 .25	0.01	0.04 .01 .03	.02		0.07			.01 .43	0.56 .13	T. 0.09	0.06 .44 .01
5	.01	.18	.15	75	.04	.06	.18	0.77	T.	.70	0.32	T.	4 5	.02	T26		.10	0.25	1.70	1.02 T.	0.05	.02		. 52	.01
6 7 8		.20	.42	.01 T.		.24 .29 .09			.01	.17 .96		.01	7 8	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$						.01					
10		Т.	T. .37			.02	T.	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$																	
12 13 14		.50 .20		.78 .48 .70		T. T.					T.	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$						.02							
16		.44		.91		.17 T.	.09	.01	.85	. 33	.07	T.	14 15				.02	.04 T.	.51		1.45	.02	.01	.06	
16. 17. 18. 19.	т.	.06	.02	т.		.42	2.38		1.16 .04	.01	.25 .02 T. T.	.06	17	. 07	.10	T. .04 .37	.03	.41 .14	T.	.06		.05	.02 .53 .09		T. .01
		т. т.	.31	T.	T.	T. .05	т.	.05		•		.06	20	.05	T.	.01	. 05 1. 69		.01	.03	.48				1.12
21 22 23 24 25	.05 .01	.01	.25 T.	.01	.05 .36 .10	T. .90 T.	.76	т. т.		т.	.06	T.	22 23 24	.06	.01	T. 11	.01	T.	.45	.03	T. .10		.04	.36	T.
**********	.00	•••••		.34	.25	••••					T.	.06 T.	25 26	.07 T.	. 25	.03	.04	.12	.04	T.	.23				.01
26 27 28 29	.02 T. T.	1.25 .52	Т. . 27		52 .64		.09 T. .26	.02 1.78 1.67			T. .17 .14	T. .02 .23	27 28 29	T.		.27	.20	T.		.17		.02	т,	1.47	.11 .10
31	Ť.				т.		1.43	.47			Т.	.02	30 31	.03		.33		.25 T.		.04	т.		.10		
Sums	1.24	4.76	2.51	5.41	2.40	2.77	5.91	4.84	2.48	2.50	1.84	2.27	Sums	1.66	1.46	1.46	3.48	5.02	6, 11	3.57	2.61	1.54	1.85	3.58	1,93
		,		,	,	19	04		, ,						<del></del>	1		1	19	06	1				T
1 2 3	0.23	0.01 .01	T. 0.01	0.97	0.04	0. 19 .02 T.	0.26	Т.	0.14	0.20		0.03	1 2 3	0.01 .37	0.03 T.	0.35		0. 21 T.		0.24		0.06			T. T.
5		.18				.07	.38			.38			4 5	.08	.13	.04	0.02	.03	0, 28	.47			0.25 .06		1.07
6. 7. 8. 9	T.	.01 .28	.34 .08	.06		.01 T.	.30 .41 .01		т. т.	.15		T.	6 7 8	.02		T. .03 .02	.30		.12 .20 01	2.04	0.39 T. 1.40		.24 .09 .03	0.01	T. 88
10		Т.	,11	.56	,34 01	.05	.03			.24	T. 0. 10	.01	9		T. .01	.06	.43	.28 .01	1.46 .05	<b> </b>	.41 .85		.56 .06	T. .14	.04
12	.07	.02 T.	.12 .05	.01 25 T.	.04		.03	0.09	.44	.04	т.	.08 .09 T.	11 12 13	.08	. 14	.02	T.	.10		.11	06	.31		.17	.03
15		.02	1.09	T.	.15		Т. Т.	т.	.25 .03				15	.33			.63	.27 .07	.23	.01				• • • • • • • • • • • • • • • • • • • •	.17
17 18	T. T.	.16	.41 .24	.10	.02	.06	1.40	T. T.	.72		.02	.10	16 17 18	.03	Ť.	.03	T.		.01	.03	.09		.14	.37 .26	
20	ł .	т.	.06	T.	.14	.12		2.68	.23	T.	02	T.	1920	[	1	T.			.20		.14				.28
21 22 23 24	1.89	.48 .02 .15		. 22	.06	l	.10	.07	.21	.01		.02	21 22 23	.03			.11 T.	.06	T.	.10		.02	[		.28
25	.21	Į.	1.24	1				ļ	.33	T. .04		.23	24		.03		.24	!					.01		T.
26 27 28 29 30		.07		.07	.25		.47				T.	T.	26 27 28				.00	.03		.21	.28	.03 27 	35 .09 .06	$.02 \\ .02$	.01
30 31	.03	1.80	1.60	.02	.90	т.			 	Т.		1	29 30 31	T.		.10	•••••	.06	J		т.	1.95	.07	т.	.04
Sums	4.53	3.23	6.30	2.82	3.32	1.72	3.76	2.97	3.86	1.70	0.16	1.99	Sums	1.68	0.71	2.43	1.90	1.49	3.27	4.38	4.64	2.81	2.35	3.64	3.89

Table 9.—Daily precipitation (inches), Wauseon, Ohio, 1883-1912 (including rain and melted snow)—Continued.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Day.	Jan.	Feb.	Mar.	Apr.	Мау.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
,			,			190	7												19	09					
1 2 3 4	0. 02 . 75 . 11	0. 01 .01 T.	0.27 .05 .01	T. 0.03	0. 10	0. 01 .98 T. .21 .34	T. 0. 01 . 42 . 03	0. 05 . 92 T. . 44 . 16	0. 52	0.53 T.	0. 43 . 36 . 03 T.	0.04 T. .03	1 2 3 4 5	T. T. 0.03 .16 .15	0.07	0.01	0. 12 . 05	0. 02 T.	0. 15 . 01 . 40 . 39 . 40	0.41	0. 47			0.91	0. 19
6 7 8 9	T. .11 .14 T.	T.	.08 T.	.02 .38 .02 .02	.05 .35 .04 T.	.40	.05 T.	.38 T.	.06	.91 T.	.02	.01 .06 .91 .14	6 7 8 9	.01 .06 .11	.09 .95 .02	.03 T. .67 .01	.23 .55 .01 .02 T.	. 12 1. 33 . 63 . 31	.32 .17 .25 .60		.01	.02	0. 44	.02 .07 .53	
11	.03 .08 .31 .20	.02	.21 .09 .03 .03	.01 .03 .13 .05	.13	.30 .26 1.35 .03	1.01	.02	.03	.09		.54 .16	11 12 13 14 15	.12 .23 .01 T.	.03 .02 1.07 .50	.01 .03 T.	.10	.01 .04 .06 .01	.02	.07 1.10	2.49	.01	. 13 . 02 T.	.06 .03 .03	T
17 18 19 20	.38 .08 .70 .09	.01	.58	.02 T.	.02 T. .07 T.	.03	.21	.04	1	.02	.06	1. .06	17 18 19 20	T.	.40	.03	.03 .01 .28 T.	.26	.04	.07	.71	.02	.03	.08	T. T.
22 23 24 25 26	.02 .08 .02	. 03	.02	.02	.70 .14 .05	T. .07 .49	1.06 T.		.09	.01	.02	.04 .59 .04	22	. 77 . 58	1.00 .09 .02	.56	T.	.01	.02 T. .31 .46	.03		.02	.78	2.34	11 .81 T.
27	T. .04		.48	. 06	.37	.01	Т.	. 12	.03	.01	.06 T. .15	.27 .31 .26 .27 .01	27 28 29 30	.86	.03	.13 T. .09	T. .05 .21 1.59	.82 .10 T.	.33	.51	. 56	.08 T.	T. T.	.02	T.
Sums	3. 47	.32	2.53	1.80	2.72	4. 55	3.60	2. 75	4. 67	2.63	2.01	3. 76	Sums	3.74	4.89	2.33	3.80	4.07	5. 15	1	4.84	1.71	1, 93	4.85	3.44
_		1	T	T	T_	1	1	1	T	1 _	T T	ı -			T	<del></del>	1	<del></del>	T	910	1	1	1	1	1 0 02
1	0.08	0. 64 T.	0.75 T.	0,09 T. T.	T. 0, 16 T.		0.20 .50 .51			Т.		T. 0.21	1 2 3 4 5	. 08	T. 0.30 T.	T. 0.02	0. 43 . 27	0. 21 . 15 . 74	17		. 0.02	0.02 T. .02 .34 .49	0.03 .23 .24	. 0.31	.05
6 7 8 9 10	. 12 T.	.02	T.		.08 .54 .14 .11		.20	. 12		T.	0,02	.29 .13 T. .02 .03	6 7 8 9 10	. 02	. 08 . 01	Т.	.31 T.	. 05	T.	0. 11	.02	.22 T. .04 .42	.89		T. 19
11 12 13 14	1 *.	. 03	T. T.	1	1	0. 14 . 18	T.			T.	.02		11 12 13 14 15			T. T.	.25	T.	.01	35				08	.01
16 17 18 9 20		1	.61	.15	03 .71 T	т.		. 02			T.	.09 .59 .04 T.	19 20			09	1.40 1.20	.30	T.		. 80 . 94		i	Т.	i."
21	.01	.02	.\		1	· ·····	.03 .02 .60	.02			. 12	<b>.</b>	21 22 23 24 25	T.	.02		T.	. 05	<b> </b>	- T.	T.	. 1. 12	39 .05 T.		.01
26	10	. 05	. 40	04	.33	.02			. 0. 24	03 .01 T.		. 07	27 28 29 30	1 m	. 67	T.	. 43 .24 . T.	T.		. 15			. 04	3 .5 T.	7i 20 01
Sums	1.61	3. 43	2.90	2. 79	6.07	3. 33	4. 39	3.39	. 49	1.02	1.20	2. 17	Sums	3, 16	1. 94	. 12	5. 62	2. 68	1.69	4.0	2.56	4. 29	1.91	2.6	1 1.80

Table 9.—Daily precipitation (inches), Wauseon, Ohio, 1883-1912 (including rain and melted snow)—Concluded.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
						19	11				<del></del>								19	12					
1 2 3 4 5	0.04 .04 .01 T.	0.02 .01 .01	T. 0.02 T. .08	0.02 .01 .28 .35 .29	0.03 .02 T.	0.51 .40 .56 .87		0. 29 T.		1.21 .20 .42 .16	т.	0.03 .03 .28	1 2 3 4 5	T. T. 0.01	0.11 .02 T. .01	Ť.	T. 0.19 T.	T.	0.09 .01 .03	0. 25 . 07	0.03	0.05 .09 .01	0.01	0. 47 T.	0.04 .53 .04 .05
6	.01 .04 .01	. 90 T.	.08	T. .01	.02	.02	0.69	.03 T.	0.35	.53 .02 T.	0.63	.13 .09 .13	6 7 8 9 10	.33	T. .02	0.08 .02 T.	.21 T. T.	0.16 .04 .13 .38	Ť.	.08 T.	1.80 .03 .13	.11 T.	 .06 .34 .60	.75 .07 .02	T. .01
11 12 13 14 15	.29 .04 .42 .48 T.	.01 .02 .47 .02	.86	.33 .06 .10	Т.	ا مُمَا	.12 .19	. 02 . 33 2. 20	.02 .36 .02 T. .67	.03	1.01 .18 .02	.48 .13 .06	11 12 13 14 15	.01 .03 .01 .02	.08	.11 .17 .48 .58	.02 .01 .06	.39 1.21 .44	T. T. 1.16	.31	1.06 .02 .08	.02 .02	.19	.04 .09 .02	.08
16 17 18 19 20	T.	.11 .39 T.	т.	.04 .30 1.92	.08		.01 .61 T.	.01 .02	. 26 . 71	.56	.90	. 47 T.	16 17 18 19 20	.09 .59 .03	.01	T. .60	.50	. 13	1.32 .17 .01 .07	.03	T. .11 .03 .04 .06	.07 .73 .02 .06	.56		 .12 .12 .02 .02
21		.05 .01 T.	.07 T.	.02 .05 .01	.01 .03 .19 .12	.03	.37	 .22 .22 .72	.28	.04 .69 T.	.02 .19 .04 T.	. 16 . 02 T.	21 22 23 24 25	.04 T. T.	1,22	.23 T.	.18	.11	.11	.42 .21 T.	.20	. 94	.43	.02	
26 27 28 29 30 31	. 11 . 18 08 T 25	.01 T.	.19 .28 .24 .02	T. .11 .13	.02	4.04	.11 T. T.	.01 T. T.	.04 .01 .83 .21	T. .12	.34	.18 .06 T.	26	.09 .03 .02 .04	.53 T. .01 .01	.04	.04 .07 .16 .29	.37 .31 .11	T. T.	.01 .53		.02	.09	.01	.03 .10 .04 .38
Sums	2. 10	2.09	1.90	4.03	0.83	7. 65	2, 45	4. 11	3. 81	5.10	3, 83	2.84	Sums	1,40	2. 23	2.94	1, 82	3, 78	2.97	1.96	4. 49	3. 22	2, 41	1.61	1.60

Table 10.—Daily normal temperatures (°F.), Wauseon, Ohio, 1870-1909.

 $[m=\frac{1}{2}(7^{a}+2^{p}+9^{p}+9^{p}).]$ 

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Day.	Jan.	Feb.	Mar.	Apr.	Мау.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1 2 3 4 5	26 24 23 22 23	20 20 22 20 21	30 31 29 27 29	39 39 41 41 42	52 53 53 54 54 55	64 64 66 67 67	72 72 72 73 73	72 71 71 70 71	67 68 67 67 67	57 58 59 55 55	44 44 42 43 42	29 30 31 30 29	16 17 18 19 20	24 24 23 24 27	22 25 26 25 25 25	32 32 36 35 32	44 47 48 49 48	58 60 60 60 61	70 69 70 70 70	74 73 72 72 72 72	70 69 70 70 70	62 61 63 62 60	52 51 48 48 50	37 38 36 35 36	26 26 25 25 27
6 7 8 9	24 23 24 22 21	24 24 24 23 24	32 33 32 36 35	43 45 44 44 44	56 56 58 58 58	66 66 66 66	72 72 73 73 73	71 71 71 72 72	67 66 66 66 65	53 53 53 54 52	41 42 42 41 40	30 29 28 28 28 30	21 22 23 24 25	27 26 23 22 23	26 26 27 29 27	33 34 36 35 36	49 50 50 52 50	60 60 61 63 63	68 70 70 72 72	71 72 71 72 73	70 68 69 69 69	60 60 60 60 61	48 49 47 48 48	36 36 34 33 33	25 27 28 25 25
11 12 13 14	23 24	26 25 24 23 24	35 33 32 30 32	44 46 48 48 46	57 58 57 57 57	67 67 68 69 68	72 73 73 74 74 73	71 70 70 69 70	65 65 63 63 64	52 50 51 50 52	40 39 38 36 37	30 30 29 28 26	26	21 22 22 22 22 23 22	27 27 29 26	39 39 36 38 38 40	52 52 54 53 51	61 58 61 62 62 63	71 71 71 70 71	73 73 73 72 72 72	67 67 69 69 67 68	60 59 58 59 56	47 44 44 44 44 44	33 32 31 28 28	25 25 24 25 26 26

Table 11.— Mean monthly temperatures (° F.), Wauseon, Ohio, 1870–1912.

 $[m=\frac{1}{2}(7^{a}+2^{p}+9^{p}+9^{p}).]$ 

Year.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Annual.	Year.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Annual.
1870 1871 1872 1873 1874 1875 1876 1877 1878 1880 1881 1882 1883 1884 1885 1886 1887 1887		27.7 27.1 22.5 22.1 27.5 31.0 33.4 29.5 31.7 21.9 35.4 23.6 26.2 21.9 25.0 28.0 24.7 20.2	32.6 40.9 27.8 30.7 34.2 29.9 26.5 43.2 35.7 31.1 30.9 37.8 28.0 24.5 34.5 34.5 34.5 32.7 37.2 30.8	50. 2 50. 2 49. 3 44. 4 38. 6 41. 5 44. 4 47. 2 44. 6 45. 3 47. 3 46. 3 47. 2 48. 5	62.3 60.2 59.0 58.5 60.3 57.5 59.0 57.7 56.8 59.1 64.3 63.8 52.2 52.2 53.3 56.9 60.4 63.2 55.5	70.0 68.4 70.0 72.4 71.4 77.0 68.7 67.2 67.1 65.5 66.0 66.5 69.5 66.5 67.4 69.2 69.3 64.8 72.8	74.7 70.9 74.8 72.2 73.5 74.9 70.5 73.1 67.7 70.0 1 74.4 73.0 77.1 71.6 71.5 72.7	70.1 72.5 72.8 71.4 70.1 66.3 72.5 71.0 69.3 70.0 72.1 70.6 65.5 68.4 69.9 68.0 67.6	66. 4 58. 7 64. 2 61. 1 64. 8 59. 1 60. 2 64. 4 64. 3 57. 9 64. 2 71. 1 62. 6 57. 2 67. 8 60. 7 63. 2 61. 6 59. 2 61. 6	53.1 53.0 49.6 47.0 50.9 46.5 55.8 59.0 51.5 54.8 52.9 48.9 53.2 46.9 55.6	39. 4 30.5 31.6 28.9 33.2 38.1 37.7 40.3 35.5 38.5 34.9 40.1 38.1	25. 1 21. 9 17. 1 30. 8 28. 2 28. 2 34. 5 17. 9 38. 8 20. 6 20. 7 34. 9 24. 0 28. 4 24. 5 28. 3 19. 3 19. 3 19. 3 19. 3	49. 4 48. 5 46. 5 46. 6 48. 4 48. 1 49. 3 48. 7 48. 7 48. 7 48. 1 45. 4 45. 4 45. 4 45. 4 45. 4 46. 7 48. 3	1893 1894 1895 1896 1897 1898 1899 1900 1901 1902 1903 1904 1905 1906 1907 1908 1909 1910	13. 7 30. 0 18. 4 25. 1 21. 2 27. 7 24. 1 27. 9 25. 7 24. 4 23. 8 15. 8 19. 3 26. 6 26. 2 28. 2 24. 8	22. 7 17. 9 26. 7 27. 3 20. 1 22. 9 15. 7 20. 8 16. 9 25. 5 18. 1 16. 9 24. 2 22. 5 22. 3 23. 4	35. 1 41. 8 30. 5 30. 3 36. 6 41. 8 31. 3 27. 9 34. 6 38. 9 27. 7 41. 0 38. 4 38. 4 38. 4 38. 4 38. 4 38. 4 38. 5	46. 0 49. 0 50. 5 55. 1 46. 5 52. 4 48. 8 47. 4 44. 5 48. 7 39. 6 47. 0 44. 4 49. 2 45. 3 47. 6	56. 6 56. 8 60. 6 66. 2 55. 7 59. 6 61. 1 62. 0 57. 3 62. 1 58. 1 58. 1 57. 58. 9 51. 6 59. 3 56. 1 56. 5 56. 5 56. 5	70. 6 72. 2 72. 2 68. 0 66. 4 70. 3 71. 2 67. 4 70. 3 64. 5 63. 1 65. 8 67. 5 67. 3 64. 0 67. 5 67. 3 64. 0 67. 9 65. 3	73. 4 74.7 72.0 71.6 74.2 72.4 72.1 77.4 72.7 70.9 69.2 70.1 70.8 71.6 69.0 72.4 71.6 71.2	69. 2 69. 9 73. 0 70. 6 67. 2 71. 4 72. 8 75. 4 72. 0 66. 4 67. 3 66. 2 70. 3 67. 4 68. 2 70. 0 68. 8 66. 8	62. 9 65. 2 67. 7 60. 1 65. 9 59. 8 67. 3 63. 7 59. 7 59. 1 62. 2 62. 4 64. 8 62. 3 62. 4 63. 8	50.6 50.6 44.4 46.3 55.0 51.3 55.6 58.5 51.7 48.2 48.3 49.0 45.9 50.6 49.0 51.1	36. 8 34. 4 36. 9 40. 9 35. 9 41. 0 38. 4 41. 0 37. 8 37. 8 37. 8 37. 1 37. 1	27.9 32.3 29.0 29.5 27.8 25.8 27.0 28.1 20.6 24.1 30.2 28.2 30.4 28.9 21.9 23.1 32.6 31.4	47.1 50.0 47.8 49.8 49.8 49.8 48.0 48.1 47.1 46.8 48.4 48.7 47.4 47.4 47.8 48.6 48.7 47.9
1891 1892	27.9 19.2	30.9 29.9	30.7 31.7	49.6 45.7	56. 5 56. 4	69. 2 70. 2	68.3 72.7	69.8 70.8	67. 6 62. 6	49.1 49.8	35.4 34.9	35.5 25.5	49.2 47.5	Mn.	23.5	24.5	33.8	40.9	98.7	08.2	12.3	09.7	02.9	υψ. 4	30.9	21.0	

Table 12.—Monthly and annual precipitation (inches), Wauseon, Ohio (including rain and melted snow), 1870 to 1912.

Year.	Јап.	Feb.	Mar.	Apr.	Мау.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Annual.	Year.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Annual.
1870 1871 1872 1873 1874 1875 1876 1877 1878 1880 1881 1882 1883 1884 1885 1888 1888 1889	1.32 2.14 2.57 2.02 2.14 1.29 2.53 1.77 2.14 1.72 1.93 3.22 2.36 2.40 2.14	0.82 2.68 6.81 0.12 3.26 1.50 1.48 4.28 2.91 5.11 5.02 1.15 0.12 1.96 1.719	2.05 0.97 3.40 6.561 3.78 2.88 2.78 3.43 1.70 2.78 0.62 1.49 3.64 2.98	3.53 1.31 1.53 3.07 3.21 2.33 1.65 2.33 1.65 2.33 1.42 3.71 3.152 2.27 1.90	2.80 3.72 1.70 6.06 6.13 4.70 3.06 6.25 1.33 4.96 5.97 3.95 5.61 3.36 8.36 8.479	3.09 1.43 5.47 6.06 6.36 2.58 2.82 3.31 8.43 3.18 4.73 2.79 3.83 2.55 3.52 3.52 3.88	4.16 7.26 2.59 1.60 6.379 4.28 4.20 4.99 5.03 2.57 6.44 4.20 3.03 0.31 0.86 4.82 0.48	2.97 4.26 1.44 3.82 2.27 4.03 2.72 4.72 1.25 3.48 1.12 4.36 1.52 1.95 1.54	0.55 3.78 0.66 2.23 4.15 1.56 1.89 5.29 2.36 1.85 2.14 4.1.70 0.84 0.70 0.84 0.70 0.84 0.70 0.84 0.70 0.84	0.95 1.38 0.93 3.42 2.82 4.88 2.42 0.95 2.67 8.92 2.59 3.01 3.03 1.97 1.93 3.76	3. 45 1. 87 2. 77 2. 38 2. 51 4. 02 2. 72 5. 15 2. 54 5. 83 1. 46 2. 78 3. 78 3. 88 3. 88 3. 2. 55	1.76 2.95 0.41 2.96 1.64 1.40 2.23 4.32 1.23 3.58 1.81 2.41 3.38	31. 07 38. 28 49. 58 38. 56 37. 24 36. 69 41. 00 48. 06 33. 56 41. 59 32. 91 36. 00 30. 38 34. 14 28. 49 35. 33 39. 29	1893 1894 1895 1896 1897 1898 1899 1900 1901 1902 1903 1904 1905 1906 1907 1908 1909 1910	2. 47 2. 27 2. 27 2. 20 3. 76 4. 28 3. 90 1. 50 2. 10 0. 71 1. 24 4. 56 1. 68 3. 47 1. 61 3. 74 3. 16 2. 10	5.34 4.48 0.724 1.35 2.75 4.52 5.75 1.38 4.76 3.23 1.46 0.71 0.32 3.43 1.94 2.09 2.23	3.97 3.17 1.62 2.80 6.66 8.08 5.47 2.17 3.57 4.96 2.51 6.30 2.43 2.53 2.53 2.33 0.12	6.06 3.96 2.10 6.65 5.69 2.03 1.19 4.04 2.99 1.30 5.41 2.82 3.48 1.90 1.80 2.380 4.03 1.82	2.32 4.11 2.75 2.44 3.90 3.763 4.12 3.67 6.45 2.40 3.32 1.49 2.72 6.07 2.68 0.83 3.78	3.09 2.33 0.64 4.12 3.33 3.57 1.11 3.01 5.15 7.73 2.77 1.72 6.11 3.27 4.55 3.33 5.15 1.69 7.65 2.97	5.06 0.72 0.71 11.01 3.67 4.91 4.52 5.71 2.36 6.24 5.91 3.76 4.38 3.60 4.39 3.78 4.08 2.45 1.96	0. 49 0. 87 2. 82 4. 24 1. 88 2. 24 0. 86 4. 84 2. 97 1. 93 0. 86 4. 84 2. 97 4. 64 2. 73 9. 48 4. 2. 75 4. 44 2. 75 4. 44 4. 49	2.06 3.74 1.18 4.58 0.76 3.22 2.70 1.61 1.95 7.93 2.48 3.86 4.67 91.71 4.29 3.81 3.22	3.31 2.42 1.19 1.20 0.77 3.42 2.50 3.09 2.88 2.07 2.50 1.70 2.35 2.63 1.93 1.91 5.10 2.41	3.88 1.80 2.25 5.20 3.39 2.17 4.48 1.61 2.37 1.84 0.16 3.58 3.64 2.01 4.85 2.61 3.83 1.61	6. 72 1. 84 1. 88 3. 28 3. 36 0. 93 5. 73 3. 05 2. 27 1. 99 1. 93 3. 76 2. 17 3. 12 1. 80 2. 84 1. 60	42. 74 42. 04 42. 06 46. 57 38. 83 36. 81 39. 38 35. 32 44. 89 38. 93 34. 27 33. 29 44. 21 32. 46 40. 74 30. 43
1891 1892	2.56 1.42	4.58 3.56	4. 45 5. 54	4.39 5.17	1. 49 11. 40	4. 21 8. 65	2.36 2.95	3.43 2.38	0.86 4.61	1.85 0.39	5.02 4.38	1. 91 2. 10	37.11 52.55	Mean	2.38	2.90	3. <b>2</b> 8	3.13	4.01	4.03	3.85	2.84	2.65	2. 47	3.11	2.62	37.27

Table 13.—Seasonal mean temperatures (°F), Wauseon, Ohio, 1870–1912. Means are from tridaily observations.  $[m-\frac{1}{4}(7e+2p+9p+9p).]$ 

Yеаг. ————	Winter— Dec. 1 to Feb. 28.	Spring— Mar. 1 to May 31.	Summer- June 1 to Aug. 31.	Autumn— Sept. 1 to Dec. 1.	Growing season— Apr. 1 to Sept. 30.	Nov. 1 to Mar. 31.	Year.	Winter— Dec. 1 to Feb. 28.	Spring— Mar. 1 to May 31.	Summer— June 1 to Aug. 31.	Autumn— Sept. 1 to Dec. 1.	Growing season— Apr. 1 to Sept. 30.	Nov. 1 to Mar. 31.
870	21.8 18.6 31.0 17.2 32.6 23.8	48. 4 50. 5 45. 4 44. 5 44. 4 42. 8 44. 4 43. 8	69. 2 70. 6 72. 5 72. 0 71. 7 68. 5 72. 5 70. 7	53.0 48.1 48.1 46.6 48.2 46.1 48.3 52.6	65. 6 63. 5 65. 0 63. 3 63. 1 60. 6 63. 5 63. 5	30.8 31.7 25.1 23.4 31.2 22.0 32.2 27.2	1893	20. 6 27. 1 27. 0 26. 9 26. 2 27. 6 23. 3 25. 9	45, 9 49, 2 47, 2 50, 8 46, 3 49, 3 48, 3 46, 2	71. 1 72. 3 72. 4 70. 3 69. 5 72. 0 73. 1 71. 6	50. 1 50. 1 49. 7 49. 1 52. 9 50. 7 52. 1 54. 8	63.1 64.6 66.0 65.3 62.7 64.6 64.9 65.5	26. 32. 29. 29. 31. 32. 26. 28.
879	32, 2 22, 8 33, 0 19, 7 32, 1 22, 1 23, 0 17, 3 24, 1	51.6 47.4 47.7 45.3 44.9 42.0 45.4 42.2 48.6 47.0	71. 3 70. 4 69. 2 70. 2 68. 1 67. 3 69. 3 68. 9 70. 0 71. 7	51.5 51.7 47.9 55.0 51.1 48.7 52.2 48.7 50.0 48.4	65. 0 62. 6 64. 0 64. 5 60. 6 59. 5 63. 2 61. 6 64. 0 64. 4	35.5 28.7 33.7 23.6 34.6 26.4 28.5 22.4 29.1	1901	25. 1 18. 2 20. 1 28. 9 25. 8 26. 3	46. 4 48. 4 50. 6 44. 7 47. 0 45. 1 44. 0 48. 2 44. 7 49. 0	73. 2 67. 9 67. 1 67. 1 69. 3 69. 6 67. 4 69. 2 68. 6	50.3 52.5 49.1 49.4 48.8 50.7 47.5 51.5	64. 7 61. 5 62. 1 60. 5 61. 4 63. 7 59. 1 63. 1 61. 0	28 28 32 24 26 30 31 30 31
.888 .889 .890 .891 .892	23.0 25.4 34.9	43. 7 47. 6 45. 4 45. 6 44. 6	70, 3 68. 1 71. 0 69. 1 71. 2	48. 4 48. 1 49. 7 50. 7 49. 1	61.9 61.8 62.8 63.5 63.1	20. 1 29. 8 34. 7 31. 5 30. 3	1911 1912 Mean	27. 0 21. 3 25. 2	48.3 45.1 46.5	68.8 70.1 67.9 70.0	49.6 48.6 51.5 50.0	61. 9 63. 9 62. 6 63. 1	29 25 29

Table 14.—Limiting dates of various temperatures at Wauseon, Ohio, 1870-1912.

date. date. lirom from sture to zero. 20°F. 20°F. date. date. last to first freeze. last freeze.		First La	e. last to first
1870 Feb 21 Mar 18 Dec 9 Dec 22 Tune 24 Sept 8 176 1802 Feb 20 Mar 90 Oct 20			freeze. free
1871	Dec. 28 Ju Dec. 24 M Dec. 24 M Dec. 24 Ju Dec. 24 Ju Dec. 30 A Jan. 82 M Dec. 15 Ju Dec. 14 M Dec. 14 M Feb. 85 Ju Dec. 23 Ju Dec. 10 M Feb. 10 Ju Dec. 20 Ju Dec. 10 Ju Dec. 20 Ju Dec. 20 Ju Dec. 20 Ju Dec. 21 Ju Dec. 22 Ju Dec. 23 Ju Dec. 25 Ju Dec. 26 Ju Dec. 27 Ju Dec. 28 Ju Dec. 29 Ju None 0 Ju Jan. 115 Ju Ju Ju Ju Ju Ju Ju Ju Ju Ju Ju Ju Ju J	June 19 Sept. June 19 Sept. May 4 Sept. May 8 Aug. June 13 Oct. June 6 Sept. Apr. 29 Sept. May 14 Oct. June 12 Sept. May 19 Aug. May 17 Sept. May 17 Sept. June 17 Sept. June 17 Sept. June 18 Aug. May 17 Sept. June 18 Aug. May 17 Sept. June 18 Aug. May 17 Sept. June 18 Sept. June 4 Sept.	8 165 222 132 132 11 166 15 153 17 173 5 160 7 7 129 30 167 15 170 11 143 28 177 18 134 15 121 26 152 14 161 30 166 3 172 10 174

Table 15.—Date of first and last frosts and of freezing weather, Wauseon, Ohio, 1870-1912.

1873 Apr. 25 Sept. 21 July 8 Jan. 10 May 4 June 1 Aug. 31 Sept. 28 July 17 Jan. 12 May 14 Aug. 31 Sept. 28 1895 Apr. 8 Sept. 21 July 27 Jan. 22 May 22 Sept. 1 Sept. 21 1874 May 19 Sept. 21 July 21 Jan. 18 May 19 July 22 Sept. 21 Sept. 22 Sept. 22 Sept. 22 Sept. 22 Sept. 22 Sept. 22 Sept. 21 Sept. 22 Sept. 22 Sept. 22 Sept. 22 Sept. 22 Sept. 22 Sept. 23	Year.	Last freeze.	First freeze.	Mean between last and first freeze.	Mean between first and last freeze.	Last killing frost.	Last frost.	First frost.	First killing frost.	Year.	Last freeze.	First freeze.	Mean between last and first freeze.	Mean between first and last freeze.	Last killing frost.	Last frost.	First frost	First killing frost.
1891 Apr. 9 Oct. 6 July 8 Ag. 14 May 27 May 27 Aug. 29 Oct. 6 Aver- 1892 May 8 Oct. 5 July 22 Jan. 21 May 8 May 28 Sept. 6 Oct. 5 age. May 6 Oct. 5do Jan. 19 May 12 May 28 Sept. 8 Sept. 28	1871 1872 1873 1874 1875 1876 1877 1878 1879 1880 1881 1882 1883 1884 1885 1886 1887 1888 1889 1890	May 10 May 4 Apr. 25 May 19 May 17 May 1 May 2 May 13 May 3 Apr. 12 Apr. 30 May 24 May 13 May 13 Apr. 12 Apr. 24 May 16 Apr. 24 May 20 May 20 May 11 May 20 May 21 May 20 May 21 May 20 May 21 May 20 May 21 Apr. 9	Sept. 22 Sept. 28 Sept. 21 Sept. 21 Sept. 21 Oct. 9 Oct. 22 Oct. 18 Oct. 19 Sept. 25 Oct. 19 Sept. 2 Oct. 19 Sept. 2 Oct. 14 Sept. 2 Oct. 22 Oct. 22 Oct. 24 Oct. 26 Oct. 36 Oct. 40 Oct. 40 O	July 16 July 18 July 29 July 29 July 20 July 20 July 28 Aug. 1 July 14 July 15 July 26 July 26 July 27 July 29 July 29 July 21 July 21 July 21 July 21 July 21 July 23 July 24 July 24 July 25 Aug. 1 July 8	Jan. 12 Jan. 10 Jan. 18 Jan. 17 Jan. 10 Jan. 19 Jan. 21 Jan. 22 Jan. 23 Jan. 30 Jan. 30 Jan. 18 Jan. 14 Jan. 8 Jan. 14 Jan. 20 Jan. 20 Jan. 20 Jan. 15 Jan. 14	May 10 May 14 May 14 May 19 May 17 May 11 May 3 May 13 May 8 May 1 Apr. 30 May 24 June 1 May 29 May 11 May 29 May 11 May 20 May 28 May 11 May 20 May 28 May 11 May 20 May 28 May 11 May 27	June 30 May 14 June 1 July 22 May 18 May 24 June 23 May 22 June 7 May 15 May 25 June 14 May 29 June 9 June 4 June	Sopt. 8 Aug. 18 Sept. 21 Aug. 24 Aug. 24 Aug. 25 Aug. 26 Aug. 18 Sept. 19 Sept. 19 Sept. 19 Sept. 2 Aug. 3 Aug. 25 Aug. 23 Aug. 23 Aug. 23 Aug. 23	Sept. 21 Sept. 28 Sept. 20 Sept. 21 Sept. 18 Oct. 5 Oct. 6 Sept. 19 Sept. 30 Oct. 10 Sept. 9 Sept. 21 Sept. 21 Sept. 17 Sept. 17 Sept. 14 Sept. 21	1894 1895 1896 1897 1898 1899 1900 1901 1902 1903 1904 1905 1906 1907 1908 1909 1910	Apr. 13 May 22 Apr. 8 Apr. 21 Apr. 27 Apr. 10 May 10 May 15 May 4 May 4 May 4 May 29 May 28 May 3 May 4 May 15 May 15	Sept. 25 Oct. 1 Sept. 21 Sept. 21 Sept. 27 Sept. 30 Oct. 17 Sept. 19 Oct. 29 Oct. 21 Oct. 25 Oct. 10 Sept. 10 Cot. 25 Oct. 12 Oct. 22 Oct. 22 Oct. 28	July 5 July 27 June 30 July 6 July 28 July 6 July 29 July 28 July 28 July 28 July 28 July 28 July 28 July 28 July 28 July 28 July 28 July 28 July 28 July 29 Aug. 4 July 18 July 30	Jan. 3 Jan. 22 Jan. 3 Jan. 5 Jan. 8 Jan. 17 Jan. 18 Jan. 16 Jan. 30 Jan. 16 Jan. 30 Feb. 2 Jan. 17 Feb. 9 Feb. 1 Jan. 13 Jan. 16	May 26 May 22 Apr. 22 May 31 May 6 Apr. 10 May 15 May 15 May 16 May 16 May 14 May 29 May 28 May 28 May 28 May 15 May 15 May 15	June 6 May 22 Apr. 22 June 9 July 11 May 20 May 20 May 16 May 16 May 16 May 24 June 12 May 12 May 28 May 4 May 4 May 4 May 27 May 6	Aug. 4 Sept. 1 Sept. 21 Aug. 20 Sept. 12 Sept. 13 Oct. 9 Sept. 18 Aug. 12 Sept. 6 Sept. 21 Sept. 4 Oct. 10 Sept. 26 Sept. 3 Sept. 3 Sept. 3 Sept. 7 Oct. 8	Sept. 25 Sept. 25 Sept. 21 Sept. 21 Sept. 15 Sept. 14 Oct. 11 Sept. 14 Oct. 18 Oct. 13 Oct. 12 Oct. 10 Oct. 10 Oct. 10 Oct. 28 Oct. 28 Oct. 27

Table 16.—Dates of first and last snows and of first and last thunderstorms, Wauseon, Ohio, 1870–1912.

Year.	Last snow of 1 inch or more.	Last snow	First snow.	First snow of 1 inch or more.	First thunder- storm.	Last thunder- storm.	Year.	Last snow of 1 inch or more.	Last snow.	First snow.	First snow of 1 inch or more.	First thunder- storm,	Last thunder- storm.
1870 1871 1872 1873 1874 1875 1876 1876 1877 1878 1879 1889 1881 1882 1883 1884 1884 1885 1886 1887 1888 1888 1888 1889 1890	Fêb. 13 Apr. 15 Apr. 26 Apr. 28 Apr. 29 Mar. 29 Mar. 24 Feb. 10 Apr. 2 Mar. 16 Apr. 4 Mar. 15 May 22 Apr. 9 Mar. 31 Apr. 16 Apr. 18 Mar. 21 Mar. 29 Mar. 28 Apr. 6	May 10 Apr 15 Apr. 30 Apr. 13 Apr. 16 May 22 Apr. 16 May 9 Apr. 7 Apr. 27 Apr. 27 Apr. 20 Apr. 6	Nov. 18 Nov. 6 Oct. 13 Oct. 20 Oct. 30 Oct. 24 Nov. 5 Nov. 27 Nov. 27 Nov. 12 Nov. 13 Nov. 13 Nov. 12 Oct. 23 Nov. 12 Oct. 21 Oct. 21 Oct. 21 Oct. 30 Nov. 15 Nov. 15 Nov. 9	Nov. 24 Nov. 15 Oct. 21 Nov. 20 Nov. 13 Nov. 14 (Jan. 4, 1878 Nov. 27 Nov. 18 Oct. 17 Nov. 24 Nov. 26 Nov. 20 Nov. 28 Nov. 26 Nov. 20 Nov. 26 Nov. 26 Nov. 27 Nov. 26 Nov. 27 Nov. 28 Nov. 26 Nov. 27 Nov. 28 Nov. 29 Nov. 26 Nov. 26 Nov. 26 Nov. 27 Nov. 27 Nov. 28 Nov. 28 Nov. 29 Nov. 29 Nov. 26 Nov. 26 Nov. 27 Nov. 28 Nov. 29 Nov. 29 Nov. 20 Nov. 20	Jan. 17 Mar. 14 May 9 Mar. 15 Mar. 15 Mar. 13 Mar. 11 Mar. 20 Mar. 6 Mar, 9 Mar. 18 Mar. 14 Mar. 14 Mar. 19 Feb. 7 Feb. 7	Sept. 19 Oct. 29 Oct. 31 Aug. 31 Oct. 25 Nov. 15 Oct. 29 Nov. 21 Nov. 21 Nov. 21 Nov. 2 Nov. 6 Oct. 8 Oct. 18 Dec. 25 Oct. 18	1893 1894 1895 1896 1897 1898 1899 1900  1901 1902 1903 1904 1905 1906 1907 1908 1909 1910 1911 1912  Average	Mar. 29 Apr. 2 Mar. 19 Apr. 11 Mar. 2 Mar. 31 Apr. 11 Peb. 15 Mar. 17 Apr. 14 Mar. 19 Mar. 19 Mar. 26 Apr. 26 Apr. 28	Apr. 22 Apr. 5 Apr. 2 Apr. 11 Apr. 11 Apr. 13 Apr. 21 Apr. 22 Apr. 10 Apr. 10 Apr. 10 Apr. 10 Apr. 22 Apr. 10 Apr. 22 Apr. 10 Apr. 22 Apr. 10 Apr. 22 Apr. 10 Apr. 26 May 3 Apr. 26	Oct. 28 Nov. 7 Oct. 20 Oct. 12 Nov. 12 Nov. 12 Nov. 26 Nov. 5 Nov. 10 Nov. 26 Oct. 10 Nov. 10 Sept. 27 Nov. 12 Nov. 12 Nov. 12 Nov. 27 Nov. 12 Nov. 12 Nov. 12 Nov. 12 Nov. 12 Nov. 12		Feb. 9 Apr. 7 Mar. 28 Jan. 17 Jan. 12 Feb. 26 Apr. 18 Mar. 25 Mar. 12 Feb. 7 Mar. 19 Jan. 15 Jan. 8 Apr. 3	Nov. 2 Dec. 28 Sept. 26 Oct. 28 Nov. 9 Nov. 5 Oct. 14 Nov. 21 Dec. 13 Oct. 26 Nov. 15 Oct. 10 Nov. 28 Oct. 40 Dec. 30 Nov. 24 Sept. 27 Dec. 28 Nov. 12 Nov. 13 Nov. 2

Table 17.— Yield of crops per acre, in Fulton County, Ohio, from director Ohio Agricultural Experiment Station.

Record   R				Rye.	Barley.	Oats.	Corn.	Wheat.	Year.	Clover.	Нау.а	Potatoes.	Rye.	Barley.	Oats.	Corn.	Wheat.	Year.
1873. 14 36 32 27 17 89 1.10 1.11 1896. 11 39 31 17 10 73 1874. 15 40 35 16 16 16 76 1.02 1.05 1897. 17 36 35 14 15 75 1875. 9 44 30 24 13 98 1.20 1.02 1898. 19 42 21 28 13 109 1877. 18 36 36 36 12 9 103 1.22 1.16 1900. 7 41 39 25 3 134 1878. 18 46 33 21 14 76 1.27 1.11 1879. 20 43 36 31 13 39 1.12 1901. 15 36 33 25 14 65 1880. 18 36 30 29 14 87 1.20 1.10 1902. 15 36 33 25 14 65 1880. 18 36 30 29 14 87 1.20 1.10 1902. 15 35 35 42 30 14 105 1881. 14 35 33 13 13 13 61 1.17 1.17 1904. 11 37 40 39 9 141 1882. 14 40 29 32 14 96 1.42 1.13 1905. 20 35 37 28 14 68 1882. 14 40 29 32 14 96 1.42 1.13 1905. 20 35 37 28 14 68 1882. 14 40 29 32 14 96 1.42 1.13 1905. 20 35 37 28 14 68 1882. 14 40 29 32 14 96 1.42 1.13 1905. 20 35 37 28 14 68 1882. 14 40 29 32 14 96 1.42 1.13 1905. 20 35 37 28 14 68 1882. 14 40 29 32 14 96 1.42 1.13 1905. 20 35 37 28 14 68 1882. 14 40 29 32 14 96 1.42 1.13 1906. 16 48 38 32 12 12 15	Tons. Ton		Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.		Tons.	Tons.	Bushels.	Bushels.	Rushels.	Rushels.	Rushels.	Bushels.	
1873. 14 36 32 27 17 89 1.10 1.11 1896. 11 39 31 17 10 73 1874. 15 40 35 16 16 16 76 1.02 1.05 1897. 17 36 35 14 15 75 1875. 9 44 30 24 13 98 1.20 1.02 1898. 19 42 21 28 13 109 1877. 18 36 36 36 12 9 103 1.22 1.16 1900. 7 41 39 25 3 134 1878. 18 46 33 21 14 76 1.27 1.11 1879. 20 43 36 31 13 39 1.12 1901. 15 36 33 25 14 65 1880. 18 36 30 29 14 87 1.20 1.10 1902. 15 36 33 25 14 65 1880. 18 36 30 29 14 87 1.20 1.10 1902. 15 35 35 42 30 14 105 1881. 14 35 33 13 13 13 61 1.17 1.17 1904. 11 37 40 39 9 141 1882. 14 40 29 32 14 96 1.42 1.13 1905. 20 35 37 28 14 68 1882. 14 40 29 32 14 96 1.42 1.13 1905. 20 35 37 28 14 68 1882. 14 40 29 32 14 96 1.42 1.13 1905. 20 35 37 28 14 68 1882. 14 40 29 32 14 96 1.42 1.13 1905. 20 35 37 28 14 68 1882. 14 40 29 32 14 96 1.42 1.13 1905. 20 35 37 28 14 68 1882. 14 40 29 32 14 96 1.42 1.13 1905. 20 35 37 28 14 68 1882. 14 40 29 32 14 96 1.42 1.13 1906. 16 48 38 32 12 12 15	1.41 1.		1114	15	26	36	32	18	1893	1.27	1.36	108	12	20	32	52	14	1870
1873 18 40 32 27 17 89 1.10 1.11 1895 15 22 30 22 17 10 73 1874 15 40 35 16 16 16 76 1.02 1.05 1897 17 36 35 14 15 75 1875 9 44 30 24 13 98 1.20 1.02 1898 19 42 21 28 13 109 1877 18 36 36 36 12 9 103 1.22 1.16 1900 7 41 39 25 3 134 1878 18 46 33 21 14 76 1.27 1.11 1879 20 43 36 31 13 39 5 1.18 1.12 1901 15 36 33 25 14 65 1880 18 36 30 29 14 87 1.20 1.10 1902 15 36 33 25 14 65 1880 18 36 30 29 14 87 1.20 1.10 1902 15 36 33 25 14 65 1880 18 36 30 39 29 14 87 1.20 1.10 1902 15 35 35 42 30 14 105 1881 14 35 33 13 13 13 61 1.17 1.17 1904 11 37 40 39 9 141 1882 14 40 29 32 14 96 1.42 1.13 1905 20 35 37 28 14 65 1882 14 40 29 32 14 96 1.42 1.13 1905 20 35 37 28 14 1882 14 40 29 32 14 96 1.42 1.13 1905 20 35 37 28 14 1883 1883 14 40 29 32 14 96 1.42 1.13 1905 20 35 37 28 14 1883 14 40 29 32 14 96 1.42 1.13 1905 20 35 37 28 14 163 1883 17 12 12 12 12 12 12 12 12 12 12 12 12 12	1.34 1.		65		55	33	28	19	1894	1.16	1.24	84		31	37	41	18	1871
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	.84 1.	90 8	90		24	36	24	15		1.11	1.10			27	32	40	18	1872
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	1.35 1.			10	17	31	39	11	1896	1.15	1.14	78	11		32	36	14	1873
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	1.34 1.			15	14	35	36	17	1897	1.05	1.02	76	16		35	40	15	1874
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	1.31 1.				28	21	42	19	1898	1.02	1.20	98	13		30	44	9	1875
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	1.28 1.			13	32		40	3			1.33	36			23	20	10	1876
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	1.18 1.	134 1.1	134	3	25	39	41	7	1900	1.16	1.22	103		12	36		18	1877
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$			1							1.11	1.27	76	14				18	1878
1881.     14     35     33     13     13     61     1.17     1.17     1904.     11     37     40     39     9     141       1882.     14     40     29     32     14     96     1.42     1.13     1905.     20     35     37     28     14     63       1883.     17     13     24     15     15     120     1 38     1 38     1905.     20     35     37     28     14     63       1883.     17     13     24     15     120     1 38     1 38     1 306     16     48     38     32     12     115	1.33	65 1.3			25	33	36	15	1901	1.12	1.18	95	13	31			20	1879
1881.     14     35     33     13     13     61     1.17     1.17     1904.     11     37     40     39     9     141       1882.     14     40     29     32     14     96     1.42     1.13     1905.     20     35     37     28     14     63       1883.     17     13     24     18     13     13     1906.     16     48     38     32     12     115	1.38					42	35	15	1902	1.10	1.20	87	14	29	30	36	18	1880
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	1. 40 1. 1. 16			12	24		41	17					۱					100-
1882.     14     40     29     32     14     90     1.42     1.13     1905.     20     35     37     28     14     90       1883.     17     13     34     18     15     120     1.38     1.36     1906.     16     48     38     32     12     115       1884.     16     39     38     18     11     109     1.27     1.33     1907.     19     38     24     19     14     88       1885.     16     30     28     16     14     99     1.24     1.13     1908.     21     46     29     25     12     110       1886.     17     34     43     24     15     100     1.08     .94     1909.     23     39     23     26     14     107       1887.     17     33     35     31     14     44     1.29     1.28     1910.     20     30     41     31     14     41	1. 16 1. 42	141 1.1		14			37	111		1.17	1.17	61	13				14	1881
1884. 16 39 38 18 11 109 1.27 1.33 1907. 19 38 24 19 14 88 1885. 16 30 28 16 14 99 1.24 1.13 1908. 21 46 29 25 12 110 1886. 17 34 43 24 15 100 1.08 .94 1909. 23 39 23 26 14 107 1887. 17 33 35 31 14 44 1.29 1.28 1910. 20 30 41 31 14 41	.83				28		35		1905	1.13	1.42	190	14	32	29	40	14	1882
1885. 16 30 28 16 14 99 1.24 1.13 1908. 21 46 29 25 12 110 1886. 17 34 43 24 15 100 1.08 .94 1909. 23 39 23 26 14 107 1887. 17 33 35 31 14 44 1.29 1.28 1910. 20 30 41 31 14 41	1.33		110		32		48	10			1.38						17	1004
1886. 17 34 43 24 15 100 1.08 .94 1909. 23 39 23 26 14 107 1887. 17 33 35 31 14 44 1.29 1.28 1910. 20 30 41 31 14 41	1. 41 1.						38,				1.27				38		16	1004
1887. 17 33 35 31 14 44 1.29 1.28 1910. 20 39 41 31 14 41	7.72 1.	107 1.9			20	20	1 40	21		1.13	1.24	100	14				16	1000
10001 17 33 35 31 14 44 1.29 1.26 1910 20 30 41 31 14 41	1. 12 1.				20	41	39	. 20			1.08	100					17	1000
	1.12	71 1.7	31	14	31	41	30	20	1910	1.11	1.19	66	17				17	1007
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	.87	148 6	148	11	30	30	42	91	1011	1.11	1.19		1 1/4		41.		20	1880
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	1. 13			111			43	21	10107		1.11	94					17	1009
1890.   16   31   31   22   12   83   1.31   1.44   1912b.   5   47   50   45   11   148	1. 13	140	140	1 11	40	90	1 **	9	19120.	1.44	1.31	89	12	22	31	31	16	±09U
1891. 21 36 38 27 16 133 1.36 1.19 Mns. 16 37 34 26 13 93	1, 22 1.	03 1 2	03	13	26	24	37	16	Mng	1 10	1 26	133	16	97	90	20	01	1801
1891. 21 36 38 27 16 133 1.36 1.19 Mns. 16 37 34 26 13 93 1892. 16 21 26 16 8 59 1.43 1.12	م	55 1.2	33	1 20	20	94	37	10	mus	1.19	1.30	50				30	21	1800
2002 10 21 20 10 0 05 1.70 1.12	ļ		I	1	Į.	1	l	l	1	1.12	1.40	1 99	•	1 10	20	21	10	******

a From meadows other than clover.

Table 18.— Yield of fruit in Fulton County, Ohio, from assessors' returns.

Van	charde	Ap	ples.	Pes	ches.	Pe	ears.	Che	erries.	P	lums.	W	Acres in or-	A	oples.	Pes	ches.	P	ears.	Che	erries.	Pl	ums.
Year		Acres.	Yield.	A cres.	Yield.	Acres.	Yield.	Acres.	Yield.	Acres.	Yield.	Year.	chards.	A cres.	Yield.	Acres.	Yield.	Acres.	Yield.	Acres.	Yield.	Acres.	Yield.
1870 1871 1872 1873 1874 1875 1876 1877 1878 1879 1880 1881 1883 1884 1885 1886 1887 1889 1890	9, 173 4, 307 4, 763 4, 723 4, 324 4, 384 4, 590 5, 134 5, 138 5, 150 5, 698 4, 758 4, 778 4, 780 4, 778 4, 774 4, 619 5, 006 5, 689 4, 654		Bushels. 120,536 210,207 1965,372 230,212 141,819 122,363 337,982 337,982 155,480 393,390 199,178 174,813 160,048 102,082 87,333 367,731 107,213 197,300 227,315 23,564 129,611 36,655		Bushels. 3,547 4,550 9,395 0 761 1,408 1,609 7,141 473 5,102 5,102 300 300 300 436 603 410 1,853 320 7,869 100		Bushels. 292 690 519 485 671 145 467 649 381 436 710 552 572 461 279 220 1, 200 1, 718 3, 236 7, 744 5, 012		918 379 68 35 810 59 1,073 30 202 5,732 336 2,482		24 0 7 7 0 1 1 46 100 97 71 31 386 6	1893 1894 1895 1896 1897 1898 1899 1900 1901 1902 1903 1904 1905 1906 1907 1908 1910 1911 1912 Mn		3, 249 3, 124 2, 541 3, 232 2, 493 2, 671 2, 920 2, 652 2, 713 2, 133 2, 162 2, 060	Bushels. 10, 062 96, 012 96, 012 96, 013 307, 037 55, 223 106, 173 113, 122 43, 202 157, 733 128, 638 30, 752 111, 980 26, 639 128, 639 19, 942 29, 420 94, 042 61, 581 87, 271 136, 933	74 111 143 89 117 102 55 53 32 245 38 15	Bushels. 1,540 1,980 6,512 9,157 24,863 1,509 3,059 3,436 1,425 1,425 2,716 247 2,374 1,873 80 2,2250	12 44 11 4 15 14 4 0.5 15 2 18	Bushels. 1,308 1,308 1,980 13,765 1,849 636 2,293 294 468 733 1,259 391 1,139 250 190 672 444 225 1,156	3 16 7 1 4 5 8  1  3	Bushels. 135 135 1,298 448 295 580 39 246 79 32 172 68 242	29 22 12 4 9 26 9 1	Bushels 236 128 950 270 8 8 122 433 211 279 355 151 1480 211 95 17 287 197 84

a Previous to 1900 the number of acres in orchards was given and the number devoted to each kind of fruit was not recorded.

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b From assessors' returns.